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THE GREAT MOUNTAINS AND FORESTS OF SOUTH AMERICA

PAUL FOUNTAIN

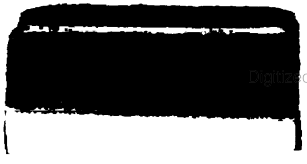
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THE GREAT
MOUNTAINS AND FORESTS
OF SOUTH AMERICA

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BY THE SAME AUTHOR

THE GREAT

DESERTS AND FORESTS

OF NORTH AMERICA

WITH A PREFACE BY

W. H. HUDSON

AUTHOR OF "THE NATURALIST IN LA PLATA," ETC.

8vo, 9s. 6d. net.

LONGMANS, GREEN, AND CO.

LONDON, NEW YORK, AND BOMBAY

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Yours Very Faithfully
Paul Fountain

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THE GREAT
MOUNTAINS AND FORESTS
OF SOUTH AMERICA

BY

PAUL FOUNTAIN
AUTHOR OF
"THE GREAT DESERTS AND FORESTS OF NORTH AMERICA"

WITH ILLUSTRATIONS



LONGMANS, GREEN, AND CO.
39 PATERNOSTER ROW, LONDON
NEW YORK AND BOMBAY
1902

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THE GREAT MOUNTAINS AND FORESTS OF SOUTH AMERICA

INTRODUCTION

THIS book is a sequel to "The Great Deserts and Forests of North America," and was originally intended to form a second part to that work; but on the advice of the publishers it was reserved and amplified to make a second book. It may not be out of place to mention that the two works do not exhaust my notes of travel and observation in America. A large portion of the northern half of that continent, over which my range has extended, including the whole of British North America, has not yet been dealt with. Personally, I should have preferred keeping to my original intention of treating the whole subject in one work; but it was not possible to do it in a single volume, and an unknown author, on a first appearance, finds it best to limit himself to one. It remains with the reading public to decide whether or not there is to be a third book. I hope that this will not be the last, for now that I am no longer able to wander over the earth's surface I take great pleasure in going over the ground anew on paper —fighting my battles over anew, as it were; and if those who take up this book find only half the pleasure in reading that I have experienced in writing it, I shall be a proud and happy author.

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As was remarked in the former book, my experiences in America cover a period of more than thirty years. The smoke of the Civil War was still hanging luridly over the United States when I first set foot on American soil, and it is but six or seven years since I shed the tear of farewell to a country I have learned to love as my own dear motherland. Most of that long period was passed on the northern portion of the continent; nevertheless my travels in the southern portion were considerable, and it is of the latter that this work solely treats. Those who have read my "Great Deserts and Forests" know that my business in the States was that of a peddler, or rather, travelling huckster, wandering on the outskirts of the settled country that I might supply the isolated farmers and ranchmen, &c., with the many small necessaries and comforts of their wild life. The love of Nature and adventure, however, was too strong within me to bind me uninterruptedly to this life, and I often wandered into the wildest and most scantily populated districts of the West and of the North. The pelts, and especially the collections of rare birds and animals, which I collected during these expeditions were not without a considerable value from a commercial point of view (though I greatly regretted the necessity which compelled me to part with them), and often procured me the means of making fresh expeditions when my profits as a trader fell off. It was this last consideration that was responsible for taking me to South America. I had long been seeking an excuse for visiting that glorious country, yet hesitated, on grounds of duty, to give up a certain means of livelihood to take to a life of aimless wandering. However, men's minds gravitate as surely as other things, and where an excuse is wanted one is sure to present itself. So when, after long thinking it over, it seemed to me probable that I could cover the expense of my journey by the sale of the collections made in the course of it, I soon decided that to South America I would go. I do not say that I have ever regretted

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making that series of wanderings I am about to narrate; but I certainly made a woeful miscalculation as to the value of the collections I found it possible to make, though in this matter I was the victim of persistent ill-luck, losing several valuable collections by accident, as I had previously done in the North; a circumstance that those readers who have followed my fortunes in the States will probably recollect.

Ostensibly my journey to the South was to study bird-life and to make as complete a collection of specimens as possible. A secondary object was to ascertain if the many stories of monstrous serpents found in the remote Brazilian forests had any truth in them. I had some minor objects in mind; but these will appear in the course of my narrative. As a matter of fact the real object of these travels was to gratify that intense longing to visit remote and little-known spots on the earth which was the first cause of my choosing a wandering life, and which I could no more overcome than the sun can fail to give light and heat—a natural feature, or failing, which would still be the guiding principle of my life were I not incapable of following it longer. For, it may interest my readers to know, always a cripple since the days of my boyhood, it has astonished my friends that I have proved capable of living the adventurous life of my choice; but now, as the result of a second severe accident, I am a mere wreck, and have had to abandon my beloved forests and prairies for the remnant of this life. I say "this life," for I still comfort myself with the Indian idea of "a happy hunting-ground" in the future. Surely if this world is so wonderful and so beautiful, that which is to come cannot be less so. The Great Spirit cannot fail to be marvellously skilful in all His works; and, as Victor Hugo has said, "this world is evidently but the vestibule to a greater."

I am not following quite the same plan in this work that I marked out for my guidance in the first book

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("Deserts and Forests of North America"), viz. that of leaving out as much as possible my personal adventures. In the opinion of a gentleman well qualified to judge, himself an American traveller and a writer of experience, I made a mistake in supposing that my Natural History notes were the most valuable part of my work. Therefore, though I still give my notes of animal and vegetable life in the hope that they may have something of interest generally, if not of value, this book is somewhat more, I think, of a connected narrative of travel and personal experience than the former. Not of adventure, mind. I have had to face dangers, truly, and have occasionally found myself in trying situations; but they are dangers and trials of the ordinary sort, such as are inseparable from the experiences of all travellers in wild countries.

It was in the year 1884 that I first saw the southern half of America, and I went straight to Brazil. This was owing to the difficulties of transport, which, I concluded after much thought, would preclude my following my North American plan of using a horse-van and mules. I resolved that my first journey should be a boat voyage on the Amazon and its tributaries. Some sort of conveyance was an absolute necessary to me, because, having to use irons, it was impossible for me to exert myself in walking long distances like an ordinary man. I therefore purchased a fishing-boat at Para, had her towed to Obydos, where extensive alterations and fittings were carried out, and the craft stored with what I calculated would be sufficient food and necessaries for four or five persons for six months. The four or five persons, however, could not be procured. This was the minimum number which I thought was sufficient for her crew; but no man would take service with me when they learned where I intended to go, and what I wished to do. In fact they seemed to look upon me as "an English madman," not an unusual character for my countrymen to bear when abroad. Then a great difficulty was that

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it was necessary for my crew to have at least some slight knowledge of the English language, for I am no linguist. And I think I did myself no good in the opinion of the superstitious fishermen by changing the name of the boat. Of course she was a *Santa:* all fishing-boats (and I might almost write all others) bear that prefix. I remember an irreverent Yankee skipper saying to a man one day: "You call that rotten old tub the *Mother of God*, and think that ain't blasphemy! Why, she makes a gallon of water an hour, and I'll bet you ten dollars that her bottom drops out before next Good Friday." However, a *Santa Maria* not suiting my taste, I called her the *Firefly*. The *Creeper*, or the *Tortoise*, I soon found out, would have been a more appropriate name. As for crew, I had to dance back to Para to find them, and after much trouble I engaged two sailors, a Brazilian and a Venezuelan, who came to me with terrible characters —characters which I did not seek, but which were forced on me by several skippers who knew the men. I was assured that they were two murderous scoundrels, who would surely cut my throat on the first opportunity. But I was in this fix: that I must either accept their services or abandon my proposed journey. No risk would have induced me to take the latter alternative: so the two men became my assistants; and I need not delay to say that from the day of their entering on their engagement till that of our parting I never had the slightest trouble with them; nor did so much as a sharp word pass between us. They were, no doubt, men who had led a wild and vicious life; but while with me they worked hard, and their behaviour was faultless. I had already seen so much of rough characters in the States as to have become used to their ways and tricks, and it would take a very monstrous villain to cause me much anxiety. I hope I shall not shock any person's righteous susceptibility by saying it, but really, most of these American rascals have traits that I cannot

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help admiring, and they appear to me seldom to be such mean rogues as one finds in the great cities of Europe. At all events I have personally no cause to complain of them; and, as I have mentioned in my former book, I have often received great kindness from men who would be accounted notorious criminals in long civilised countries. While detesting the crimes of such men, I have felt that they, perhaps, need kindness of treatment and forbearance as much as those who have not fallen. That has been the line of conduct I have followed regarding them, with the result that I have never suffered evil at their hands, and have always succeeded in leading them when they certainly could never have been driven.

The two sailors I have alluded to were both over thirty years of age; and, while far from being ill-looking men, showed in their faces the results of wild and riotous living. They were named Joseph Najas and George Maccara, but they are generally referred to in this account of my journey as Joseph the Brazilian and George the Venezuelan. Both were experienced seamen, and were particularly skilful in the management of the boat, having spent their early days as fishermen. Of the boat itself I cannot say anything that is favourable, but she was the best my means admitted of my obtaining. She was partially decked, with a single mast, and answered the helm with a most exasperating degree of uncertainty. When loaded with over two tons of provisions and stores she drew about three feet of water; and as this was too great a draught to permit of her near approach to the banks of shallow rivers, it became necessary to have a small boat of some kind. I myself made a canoe capable of containing two men, having learned the art of bark-canoe making in Canada. This canoe caused no small degree of curiosity among the water-side men at Obydos. It is strange that the canoe seems to have never been very prevalent among the aborigines of South America though so largely used

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in the northern division of the continent; indeed it seems to have been quite unknown to the Brazilian Indians, as also to those of Peru, Chili, and the coast-line generally, although "woodskins," a kind of a bark canoe, are used by the Indians of Guiana. When travelling, the Indians invariably swim the broadest rivers they come to, without any other support than, perhaps, a small log of wood, if the stream should be strong.

I had many improvements made in the fittings of the *Firefly*, including a small deck-house aft, intended as a sleeping-place in bad weather, and tarpauling awnings to protect the entire boat and stores from heavy rain. To as far as possible make up for the weakness of the crew I took four large dogs with me, two of which were powerful and fierce animals, a kind of wolf-hound, which I procured in the United States. These dogs were invaluable for watching purposes, as they detected the approach of strangers more readily than a human watch, especially at night; and no savage dared approach the boat when these dogs were loose. The saving of strength obtained by using these dogs was incalculable in so small a party as ours; for after a long day of poling, or rowing, we could safely anchor in mid-stream and retire to a night of much-needed rest, leaving the work of watching entirely to the dogs, who made so violent a barking if another boat happened to pass, even at a considerable distance, that we were sure to be aroused.

Towards the close of July the boat was ready to start on the first journey. This season is considered mid-winter by the people of Obydos; but winter in the Amazon Valley is not to be confounded with the wet season, which appears to be the spring time. However, the seasons seemed to me not to be so decidedly marked as in other parts of Tropical America that I visited; and we had considerable variation of weather, as will be presently seen.

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CHAPTER I

A TRIP UP THE TROMBETAS

As I could not speak a dozen words of the Portuguese language I had to trust to a person who acted as interpreter, at first, and to my men subsequently, for such information as I desired before starting on my journey. There was plenty of traffic on the Amazon, which I understood to be carried on for many hundred miles above Obydos; but information about the tributaries of that great river was remarkably meagre. Obydos is situated on the northern bank of the Amazon, near the mouth of the Trombetas, which I was anxious to explore; yet the inhabitants knew scarcely more about it than they might be expected to do of some obscure river in the heart of Africa. The source was known to be in the Tumucuraque Mountains on the borders of Guiana, and to be one of some half-a-dozen streams any one of which seemed to have about an equal claim to be considered the actual source. The Trombetas was said to run through a dense forest, and to afford an uninterrupted route into the interior; but no one could be found who had ascended it farther than some thirty or forty leagues.

Round about Obydos, and the mouth of the Trombetas, the country looks quite flat, and there are a greater number of extensive clearings than I noticed at most other towns on the river's bank; but as we ascended the river I discovered that these clearings did not extend to any great distance inland. The current of the river was sluggish, indicating that it flowed through a level country; and it was wider some miles up than at

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the mouth. There was a light, south-easterly breeze blowing rather fitfully on the day of our start, and we hoisted the sail; but our progress was very slow though we worked hard at the oars as well, and I began to fear that the crew was too weak-handed to work the boat. Fortunately the men were cheerful and willing, and I worked myself as hard as either of them; and so, after about fourteen hours' severe exertion, we lay to for the night, about forty miles, as I calculated, from the mouth of the river. There were several islets at this spot, under the lee of one of which we made the boat fast. It was so thickly wooded that we could not land until we had cleared a passage with the axe. Just below the island the river was half a mile wide and twenty feet deep, with a muddy bottom. Both banks were thickly wooded, many tall trees growing in the water; and on the way up we had passed several fazendas, or farm-houses, and what looked like small Indian hamlets; but we did not attempt to land anywhere, and did not seem to attract any attention, which was, perhaps, not surprising, as there were several boats navigating this part of the river, but none so large as ours.

The night was cool, almost sharp, and we were glad to make a large fire on the islet where we landed, and prepare some hot cocoa. A fire is always cheerful, and never more so than when camping out in the lonely wilderness; and its effect on my two men was evidenced by their bursting into a lively seamen's song as its bright blazes shot up straight into the still night air, and their nostrils were gratified by the delicious odours of the steaming cocoa and frizzling pork, while the dogs also partook of the general comfort, sitting with their noses almost among the glowing wood embers. It was a splendid night, with one of the clearest skies I ever remember to have seen, and not a breath of air stirring, yet so cool, that, notwithstanding the latitude, I was inclined to suspect a touch of frost. However, soon after

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daybreak a breeze set in, and the sky rapidly became overcast with heavy clouds. By nine o'clock the atmosphere was close and stifling, and caused us to perspire profusely under the exertion of poling the boat, for we had made an early start. At noon the heat was very great, melting the pitch in the seams of the boat; and at three o'clock in the afternoon a heavy thunderstorm burst suddenly upon us. The rain fell in torrents for an hour and a half, when the sky suddenly became clear again; the wind dropped, and the sun shone with great brilliance. The great heat caused the wet on the leaves of the trees to turn to vapour, and the forests presented an extraordinary spectacle, vast clouds of white steam arising and rolling across the river like dense smoke, so that we quite lost sight of both banks of the river, and for a time were enveloped in a mist that was heavy enough to saturate our clothing. We afterwards became quite used to this phenomenon, which is of frequent occurrence in all the Brazilian forests after rain.

As we advanced up the river we found its bed to deepen in proportion as it narrowed, until we had nearly thirty feet of water. This part of the river was free of islands, but higher up it widened and shoaled again, and the small islands in its course were more scantily wooded than those lower down the stream, and had low sandy beaches, on which we could easily land. We saw caymans on some of them; but these creatures were very shy, and disappeared on our approach. The current of the river, also, ran quicker in these higher reaches. The second night was passed in a similar way to the first, and the weather was much the same. While supper was preparing, a large fish, at least six feet long, leaped in play quite out of the water, falling back with a lordly splash. I quickly had my rod and line out, and lines were kept in the water all night, but we failed to catch anything. Yet the river was full of fish, large shoals of which we saw swimming about. A few small ones were caught with a hand-net.

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During the second day we passed several clearings on the banks where timber had been felled, and saw a party of men at work. We also passed a raft or two floating timber to Obydos. It puzzled me a little why these men had come so far to fetch timber, seeing that there is plenty growing close to the town. A few other signs of the presence of civilised man were met with during the day, but long before night set in we seemed to have got beyond the limit of these, and to be fairly in the wilderness. A few natural savannahs were seen on both banks of the river, but they were of small extent. Myriads of birds occupied the trees, and continuously flew across the river with a tameness that showed they had not been much disturbed by the presence of man. They were mostly parrots, pigeons, water-fowl, and small birds.

Some of the sandy banks on the islets and shore were covered with vast numbers of small tortoises, of a kind which I had seen abundantly exposed for sale at Obydos and other places, where they are used as an article of food, or for the purpose of extracting the oil. We passed some boats which had been collecting these animals, and excited the curiosity of the men who manned them, who stopped us to make inquiries. According to my companions, they inquired who I was. Was I a great gentleman? What was I doing there? What did I want with a great boat like that? When they learned that I was travelling for pleasure only, and to collect the skins of birds and beasts, they laughed heartily, and evidently did not believe half what was told them. In one of the last boats which stopped us there was a man dressed in uniform, who, with an insolent manner, demanded to see my papers, and asked my business on the river. I complied with his demand, and when he read some letters of recommendation which I had procured from the authorities at Para and others, his manner instantly changed, and he became obsequious. He was so fussily anxious to make himself agreeable that I was glad

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when he took himself off with many bows and salutes. The Brazilians are outwardly a polite people, but their politeness, like that of the French, is only skin deep. They are a very selfish race, and, if opposed at all, are sometimes exceedingly rude. In this respect I noticed a great contrast between Brazil and those South American countries which were originally peopled by the Spaniards. The Spaniards are a truly polite and obliging people. Yet I would record that in Brazil, as in every other country where I have sojourned, I have met with people of kindly disposition, to whom I owe a heavy debt of gratitude.

Continuing our journey we poled the boat, as I suppose, about two hundred and forty or fifty miles up the stream, when we could go no farther on account of the frequent shallows in the river's bed. Throughout that distance there was a great sameness of scenery on either bank, and we nowhere could obtain an extensive view of the back-country. Much of the ground was flooded, and the forests consisted of trees remarkable for their great height, interlaced with vines and creepers so thickly that it was impossible to penetrate into its depths until a way had been cut with the axe. Many of the trees bore curious-looking fruits; and a few were still in flower. Monkeys were abundant among their boughs, but were chary of showing themselves freely. No large quadrupeds were seen; but bats, including a very large vampire, were abundant; and the river swarmed with fish. The latter were of few species, notwithstanding the abundance of individuals, and most of them were broad, or bream-shaped, fishes. At evening time they were generally leaping from the waters all around us in great numbers, either sporting, or to escape some hidden pursuers. One species was five or six feet in length, with a large head, not unlike that of a cat-fish. Some of the smaller kinds which we caught were watery and flavourless, and scarcely worth the trouble of cooking.

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There were also plenty of caymans in the river, especially in the upper reaches, but they were singularly shy, and gave us no trouble.

On the way up we passed the mouths of nine large tributaries of the Trombetas, all, except two, entering it from the left, or easterly bank. The brooks and smaller feeders, many of them with brisk currents, were too numerous to be recorded. At our stopping-place, which we reached on the 3rd August, the Trombetas was still nearly three hundred yards wide; but as there were many pools and flooded patches in the neighbourhood, it was difficult to define the exact limits of the banks. There was elevated ground near this place; and Joseph the Brazilian, who ascended a tall tree to get a better view of the country, said he could see high hills to the northward. These must have been the Tumucuraque Mountains, or that part of them known as the Sierra Acaray. The banks of the river a little higher up, though generally low, were in places high and rocky. At such spots it was easier to land than where the banks were low, for at these latter places the dense vegetation came down, a matted mass, right into the water.

So far the journey had not yielded incidents of exceptional interest, but I determined, before returning, to make an effort to penetrate inland from the river, and ascertain the nature of the country. Accordingly, at day-break on the morning of 4th August, I started in the canoe to find a convenient landing-place, taking with me Joseph Najas; but nowhere could we penetrate farther than a few hundred yards beyond the river's bank. At last we paddled up a creek some seven or eight miles, but here the banks were everywhere exceedingly swampy and generally several feet under water. The course of this creek (it seemed to have no current) was so confined that the trees met overhead with their branches laced across and across, and we frequently had to cut a passage before we could proceed; and throughout the

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whole distance were always in a semi-dark tunnel of the closest grown vegetation I had ever seen. At length the channel was quite choked up with gigantic water-plants, and we were compelled to stop. The solitude of this place was really awful: we saw not the least sign of any kind of animal life—not even a fly.

It looked as if our journey was going to be a fruitless one, when I noticed how closely down to the water the branches of the trees grew here. They sprang out almost horizontally from the trunks, and it looked as if it would be quite easy to step from one to the other, insomuch that I determined to try it. Making a fair start proved the worst part of the work; but when we had got up a certain height it was as easy to step from branch to branch as to walk upstairs. On we went, gradually rising higher and higher by imperceptible degrees, unable to see the ground beneath us or the sky above; and often out of sight of each other, so that I had to be incessantly calling to Jose for fear of losing him. No ladder could have been so easy of ascent as the branches of these trees, each step only elevating us some three or four inches, unless we chose to step higher. It was necessary, however, to keep hold of the creepers which trailed across our path like great ropes; for many of the branches were rotten, and gave way under our weight, though I do not think that we could have fallen far, so closely were the branches laced together. Indeed this was the only difficulty that we met with, for they were often so closely interwoven that we could not force ourselves between them, and were compelled to either climb upward over such obstructions or cut a way through with our knives. In this extraordinary way, literally walking on the forest, we must have journeyed at least half a mile, until I became apprehensive that if we went farther we should be unable to find our way back to the canoe. To all appearance we might have travelled scores of miles in this novel way.

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At this point we could hear the monkeys chattering in the tops of the trees and some parrots screaming. They probably saw us, though we could not see them. But the objects that attracted my attention most were the beautiful orchids that were growing luxuriantly on the moss-covered boughs in the gloomiest parts of this dark forest. They were very beautiful, both in shape and colour, but mostly of light tints — pink, white, and yellow, some spotted, some striped with crimson. Strange that the Creator should hide away in such an obscure and impenetrable place, some of His most beautiful works. But it is so all over this wonderful country. The choicest flowers bloom unseen, except by the chance passer-by; the strangest animals and birds hide in the most inaccessible fastnesses.

Several times Jose, who was a careless, devil-may-care sort of fellow, fell, through the branches breaking under him; but it was impossible to fall far, and he was not hurt. Still I feared an accident might happen in a spot where it would be difficult to render him assistance; and it was certainly high time to return, for the day was far spent, and we were at least ten miles distant from the *Firefly*. I determined, however, to first make an effort to get a good view of the country; and, selecting what appeared to be a tree of unusual height, we commenced to climb towards the top. There was no great difficulty in doing this, the branches sprang from the trunk so thickly. What the actual height attained was can only be conjectured. It was probably not much less than two hundred feet, judging from the size of the trunk; and as the tree towered considerably above those surrounding it the sight obtained from its top was very remarkable. Our eyes wandered over an immense stretch of leafy billows, rising and falling in many undulations, until it was bounded by a range of mountains bearing about north-west from our position. How far off this range was I could not guess. It only appeared in misty out-

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line; but several remarkable peaks, like flattened cones, rose above the general line of the mountains. The distance was too great for us to form an opinion as to whether they were wooded or not, or if the forest ran right up to their bases. I was inclined to think that it did. Neither the course of the river or that of any other stream could be traced, being buried to view amidst the dense forest. It is possible that many streams thus hidden intervened between us and the mountains. In all other directions, except the north-west, the unbroken forest rolled away to the distant horizon. Much below me a flock of green parrots—birds about the size of a jackdaw—were wheeling and screaming around the top of a tree. These were the only creatures that we saw. No other bird, nor the monkeys, showed themselves; though we were sure that the latter were at hand, since we had heard them chattering together excitedly during our journey among the trees, and afterwards we heard them howling and calling to each other, sometimes from a great distance, giving warning and answering each other.

The descent proved a more ticklish and troublesome business than the ascent of this tree; but we got right down to the ground, on which we found we could walk fairly well, notwithstanding its marshy condition. I had kept a rough course by means of a pocket compass to enable us to find our way back; yet this proved no easy task, and I got the greatest fright I ever remember in any of my wanderings. For it took us nearly four hours to find the canoe, and I feared greatly that we were lost. That would have been a fatal misadventure, for it is certain that no help would ever have reached us in this dreadful solitude, our only comrade being as powerless as ourselves, besides being quite ignorant of the direction we had taken. Twice I slipped into the water, and was nearly drowned; and when the canoe was found it was dark in that gloomy place, and it is little short of a miracle that we found our way out of the

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creek without further accident. During the latter part of our journey we were greatly helped by the reflection of a large fire which George the Venezuelan had made on board the boat for our guidance. He had become very anxious on our account, knowing from our prolonged absence that something must have gone wrong.

During the few following days we made several other short excursions with a view to penetrating into the interior of the forest, and obtaining some knowledge of the country, but we could not advance far in any direction, principally on account of the exceedingly marshy nature of the ground. The forest was quite different in character from any I had ever explored before, but it is true that I had scarcely any experience of tropical forests. The trees were of great height, and remarkable for the small size of the trunks compared with the height. Three or four feet of diameter through the trunk meant, I dare say, fully two hundred feet of height, which is very tall indeed for a tree. The bark was very light coloured, a sort of a grey or muddy white. The trees were laced together by a thick growth of vines and creepers, many of which bore curious-shaped fruits; but this did not seem to be the flowering season though there were many flowers seen, especially orchids. The Brazilian forests are never entirely without either fruit or flowers, but most of the trees flower at the season which goes by the name of "spring" in the country. These seasons, however, do not seem to me to be well defined, and the wet season, which in tropical countries answers to winter time, is not well marked in the Amazon Valley. There is more rain in the wet season than at other times, but my experience is that there is never any considerable lapse of time without more or less rain, and on the other hand the rains are seldom very persistent in duration. Neither is the heat so great as I should have expected to find in a country lying directly under the equator.

A strong characteristic of these lonely forests was

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the number of trees growing one on the other, or parasitical to each other. In frequent cases there were at least three of these trees of which the second was parasitical on the lowermost tree, or the only one drawing its sustenance from the ground, and the third on the second, thus sapping each other's life, the only flourishing tree of the group being the third, which towered far above the rest of the forest. These trees were of species I had never before seen and cannot name; but the parasites were certainly a species of ficus or wild fig, for they were bearing fruit at this time. I suppose the seed to have been carried up to the branches of the first and second trunks by birds, where they doubtless found a congenial soil amongst the decaying moss, lichens, and droppings of parrots and other birds, which sometimes lodged in great quantities on the larger boughs and forks near the trunk.

There was another tree of singular growth. The branches sprang out horizontally on all sides from the trunk, commencing a few feet from the ground, so that they could be ascended by a climber with the ease of a ladder, and by this means the boughs of the taller trees were easily reached. The leaves of most of the trees were various shades of brown, and faded red, and yellow in colour, there being but little bright green in the depths of the forest. Some of the bushes were covered with red and white blossoms which gave forth so strong an odour that it was positively offensive, causing a sickly feeling of nausea. In the interior of the forest an extraordinary silence reigned; there was absolutely no animal life to be seen, except in the cases particularly mentioned, though there were probably swarms of birds, monkeys, and other creatures hid in the tree-tops.

Near the mouth of the creek which had been the scene of our first adventure I shot a very beautiful jay of dark plumage, with brilliant reflections of violet, blue, and deep crimson. It was sitting on the overhanging

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branch of a tree, and the report of the gun alarmed about a dozen others which flew out from the shelter of the tree, where they had been hiding invisible. This little incident will show how extremely difficult it is to catch sight of small animals and birds amidst the gloomy foliage of these dense forests. The bird was afterwards identified as the urraca-jay, which has a very wide distribution in South America. It was furnished with a dark crest, and the under parts were buffish, as were the tips of the tail feathers, with a narrow band of black above, the remainder of the tail being bluish grey. There was a blue mark over the eye, as there is in several other American jays; but this bird differed somewhat in colour and marking from other specimens of the urraca found farther south. Notwithstanding its wide distribution, it seems to be rather a local bird, being abundant in some localities of a district and never seen in others that seem equally well suited to its habits. It is found in nearly all the provinces of South America; and I have seen it as far south as the mouth of the Rio Plata, where I am pretty sure that it is a migratory bird. It seems able to accommodate itself to different situations and conditions of life, for I have found it in very open country, where there were only scattered bushes to give it shelter; but it is more often found on the outskirts of great forests in parties of fifteen to twenty, though I have seen as many as seventy in a flock. It is a noisy, restless bird, quarrelsome among themselves and with other birds, and very courageous. In places where it has not been persecuted it is as familiar and as impudent as an English sparrow; and I have seen the Brazilian boys kill them with sticks. They build loose nests with sticks, roots, and coarse grasses, in both trees and bushes; but always as high above the ground as the site will admit of. The eggs appear to be usually five in number, and are not at all typical jays' eggs, but are coated with a chalky layer, through the scratches in which the pale blue shell appears. Some crows lay very

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similar eggs; but the majority of both crows and jays lay eggs which are much spotted and blotched. Sometimes several urraca jays build in the same tree, or lay their eggs in the same nest; and in such cases there is always much squabbling amongst them, leading to the eggs being broken or thrown out of the nest. They will not permit any other birds to build near them, and they destroy many young unfledged birds, and also eggs, both of which they greedily devour. I have seen them pecking up the ground, like rooks, in their search for grubs and insects; and they can easily be caught in traps baited with small pieces of meat.

In many parts of the Trombetas the jabiru stork was abundant. This is by far the largest stork I have ever seen, and, like the wood-ibis of the Florida swamps, has the neck bare of feathers, and of a greyish colour. The long beak is slightly curved upward, and is strongly formed. On the Trombetas it was the shyest bird we met with, and would not permit of a near approach. It was seldom seen perched on the trees, but often noticed shovelling in the mud of the shallow waters with its long beak. The only food which I detected them devouring was a kind of water-lizard of small size. The colour of the plumage is white, and the bird reminded me strongly of the adjutant stork of India.

Of the many other birds seen on the upper reaches of this river I can only notice here a species of tree-duck, which was afterwards identified as a "comb-duck," the males having a fleshy comb, or rather wart, at the base of the bill. These ducks were excellent eating, as was also a smaller grey and black kind. There were also great flocks of a beautiful white egret, which resembled the little egret of Europe. Amongst other noteworthy birds was a green ibis, which was a bigger bird than the green ibis of the States. George, the Venezuelan, said that this bird is common on some of the rivers of his native land, where it is known as the "Kooree-

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kooree," a name derived from the sound of its cry, which the words well describe. I may mention, also, that the anhinga, the snake-bird of the States, was seen on many occasions; and, in spite of its reputed wiliness, several fine specimens were secured. I think that I have already mentioned that no large mammals were seen on the river; nor, from first to last of the journey, did we meet with a single Indian.

But the great vampire-bat presented a remarkable sight to one who had never seen so enormous a creature of this kind before. These great bats had the appearance, to my fancy, of huge goblins, flitting noiselessly to and fro in the air. Their flight was perfectly silent, and I never heard them utter any cry or call while on the wing. As to their size, that may be best realised by the fact that one which I secured was more than three feet in expanse of wing. None of us were bitten by vampires; and I believe the large species I have mentioned is a fruit-eater. Fruit certainly formed a large part of its food; but I am inclined to think that none of the vampires live entirely on blood, but occasionally, at least, consume pulpy fruits. There was a smaller species of vampire on the Trombetas, and three or four other species of bat. Some of these uttered a chirping cry as they flitted about. The large vampires were playful, and often flew together and fluttered for a moment in the air, as we occasionally see birds doing. I afterwards found large bats of this same species in the interminable forests south of the Amazon, and especially on the Purus; but the largest specimens that I ever saw were here on the upper reaches of the Trombetas. It is an uncanny-looking creature, having the lips habitually contracted, exposing the teeth in a threatening manner, and with a curious leaf-like flap on the nose. At no time or place could I gather the least evidence that this bat is a true vampire. In the stomachs of those killed (very few in number) I always found the pulp of fruit, but

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never the slightest trace of blood; nor did those which were handled alive ever attempt to bite. They uttered a little squeaky cry, and endeavoured to escape, and would eat almost any kind of fruit while in captivity, but never touched the blood which I placed in their cage. Besides, the bowels are different in conformation to those of the true vampire, being longer and more convoluted. They did not do well in confinement, and would undoubtedly have soon died had I not released them. Of the real blood-sucking bat we shall treat in another place.

It may be worth mentioning that on three different occasions while on this river we heard the bell-bird tolling, but could never obtain a sight of the bird itself. Often at night we were greatly disturbed by the prolonged, bellowing cry of some animal which we supposed to be a puma; but I have now little doubt the noise was occasioned by those monkeys rightly named "howlers." They are small, lightly-built animals, but the noise they are capable of making is almost incredible, and they are remarkable ventriloquists too, the sound of their cry often appearing to come from a great distance when the animals are close to you. A person hearing the cry for the first time would be almost sure to attribute it to some large beast of prey.

I pushed about twenty miles farther up the river alone in the canoe, in the hopes of finding a channel for the boat. In this desire I was disappointed, and I decided to return to Obydos, and try some other of the tributary streams of the Amazon. I wished to get the boat far into the heart of the immense forests in such a position that I could make excursions from her into the adjacent country, and yet have the power to reach my base of supplies in a few days at furthest. Some such arrangement was a necessity, seeing that it was impossible for me to transport provisions otherwise than by water. At the highest point which I reached the Trombetas was still six or seven feet deep, but so

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choked up with reeds and water-weeds that it was impossible to force a passage for the heavy boat. We commenced the return journey at once, and though but little current had been perceptible in the river, we now found that there was sufficient to materially lighten our labour, and but little exertion was necessary to propel the boat at a rate of five or six miles an hour.

One day, while dropping down the stream, a very beautiful little bird flew on board, which I at once surmised to be a woodpecker, but which, I now believe, from stuffed specimens which I have seen, was a piculet. My bird does not however quite agree in coloration of plumage with those I have seen in collections; though that is a circumstance of small import. Birds, like other animals, differ more or less in individuals, and sometimes rather markedly. What I mean is that a flock of birds which, to a careless observer, appear all alike, yet have individual marks by which one bird may be recognised from another, and sometimes those marks assume a character which is quite abnormal. So this piculet may have been an unusually marked specimen; or, what is quite as likely, a new variety. It was scarcely bigger that a wren, and the prevailing colour of its plumage was green shading into a bluish tint. There was a patch of bright ultramarine on the forehead, running into a very dark tint at the back of the head, which was speckled conspicuously with white. The tail was striped, longitudinally, with green and white. The beak was strong and sharp-pointed, and the toes arranged like those of climbing birds. It flew on board, and ran about, picking the insects from the interstices of the woodwork, and was so fearless that several times I was on the point of catching it with a hand-net. When at length it was frightened away it flew direct to the woods with a weak, undulating flight, and we saw it no more.

I have not mentioned birds of prey during this journey, but it must not be assumed, therefore, that they

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were not found on the river. As a matter of fact they were as abundant, proportionally, as other birds. Several kinds of hawks were daily seen, as well as a common buzzard, and the turkey-buzzard or vulture, as it is called in the States; and we seldom cooked a meal without the smell attracting a small flock of them, which sat patiently on the boughs of a neighbouring tree waiting for chance morsels. They would sometimes pounce down and snatch bones or pieces of meat from the half-deck of the boat, and when I threw pieces of salt pork in the air they never failed to catch them. Heads of fish, &c., they would also catch, and the men used to amuse themselves by throwing up pieces of stick wrapped in greasy paper; but these the birds speedily let drop when they perceived their uneatableness. Then the men took to catching them with a baited line, throwing the hook into the air, until I put a stop to that cruelty. A fine, swallow-tailed hawk, however, was caught in this way. The turkey-buzzards would snap up bits of salt meat; but it was rejected by the other hawks.

The return journey to Obydos was without incident worthy of record, and I remained there for a fortnight on this second visit, making preparations for ascending the Amazon to a considerable distance. The result of my inquiries, which I had great difficulty in making on account of the ignorance of my followers who acted as interpreters, was to confirm the opinion which I had formed that the whole valley was, more or less, a vast marsh or inundation, at least during the greatest part of the year. There are but few towns and cities on its banks, on account of the difficulty of finding dry sites for them. Many towns have been built, or attempted to be built, on the banks of the river and its great tributaries, and abandoned because they were subjected to continual floods, or communication could not be kept up with them on account of the marshy condition of the land. The vast and rich basin of this river never will be opened up until

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the country has been drained—a work of such magnitude and expense that I doubt if it will ever be attempted. I am confident that this district will remain a solitude of immense extent long after the rest of the world has been occupied and parcelled out. The chief reason for this is that no railway can be taken through this district, a tract of at least 1,200,000 square miles. The civil engineer thinks there is no limit to his skill or power of execution, but I have never met a man really acquainted with this region who was ready to contend the assertion I have just made. I cannot enter into details to prove my assertion in the space I have to spare for the subject, but the chief reasons are the enormous number of broad and deep rivers which would have to be bridged, and the impossibility of finding suitable materials to build them and make foundations for the never-terminating marshes. No other region on the earth's surface is so much intersected by water-courses as this northern part of Brazil, nor is there anywhere else such a vast expanse of soft ground. Besides, as any railways made in this country must have for their prime object commercial enterprise, the route by the eastern coast-line is sure to be the first selected; and even that presents such insuperable difficulties that I doubt if the money for its construction will be found by any body of adventurers, however bold and speculative, until the world is many a century older and excess of population has driven men to the obscurest nooks of the world to find a living. To me, as I fain must think to every other lover of Nature, it is no small satisfaction to think that there is one extensive tract of the world, at least, that is likely to balk the desecrating hand of the "improver" for an indefinite time. Improvements and inventions are not an unmixed blessing, and I think the world can afford to leave a part of its surface in a wild state of beauty such as no art can equal, far less excel. And no naturalist or lover of Nature can contemplate with serenity the entire destruction of the wonderful and

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curious creatures that share this world with us. In Africa and North America the big game is doomed, and if matters are allowed to go on for another hundred years as they are progressing at present it will be absolutely exterminated in those two great divisions of the globe. In the South American forests there is as yet a safe retreat for the big game of that country (which is not over abundant in species). Long may it continue so, and stringent may the laws be against those who go forth to murder—not to hunt.

While I was waiting at Obydos on this second occasion, I saw an anaconda which had been killed not two leagues from the town, and which was being shown as a curiosity by the men who had destroyed it. It was sixteen feet three inches in length and thirty-three inches in girth in the thickest part, and had three fowls in its stomach, so I surmised that hunger had induced it to leave the shelter of the forest and come among the plantations. But I am convinced that, though these great snakes are very stationary in their general habits, they do sometimes, probably at certain seasons, wander considerable distances from their usual haunts. Hunger may be one of the causes that instigate these occasional wanderings, and sexual impulse is certainly another. It will be noted that this time was the Brazilian winter season, and the interesting question arises, Do anacondas hybernate? I have not been able to glean anything positive concerning the subject, but I have a strong opinion, backed by some evidence, that both anacondas and caymans sometimes, and in certain localities, do hybernate, and at other times and places do not. I consider that moisture of a decided quality—in other words, flooded country—if not rivers and large pools, are essential to the existence of these big snakes; and if, by chance, in an exceptionally dry season they happen to be caught in situations where they have not the requisite quantity of water, they bury themselves in the mud, and hybernate. Where they have abundance of water they are active all the year round. The same rule applies to

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caymans; at all events I have met with both reptiles at all seasons of the year. On the other hand, I have noticed a strange diminution in certain localities to suddenly take place in the numbers of the latter creature, and sometimes they have seemed to entirely forsake a stream or inundated district without a cause unless for the purpose of hybernation; but I do not appear to have made notes of the times when these sudden disappearances took place. Regarding the anaconda, it is everywhere so scarce that I have had but few opportunities of observing its habits in this respect, and what information I have collected I have obtained from Indians and from the Brazilians. This information leaves no doubt that anacondas are often dug out of the mud of pools and swamps in a torpid condition; yet, as I have just said, I have found them active at all seasons of the year. I have noticed the same with regard to the river tortoises, which are said by most observers to pass a portion of the year buried in mud. This is certainly not invariably the case, unless the time of hybernation varies in different districts.

While waiting at Obydos to have some repairs and alterations made on the boat, I amused myself with fishing, and I caught several tarpon, or king-herring, in the river just below the town, one of which weighed nearly three hundredweight. These enormous fish are easily caught with a rod and line, and show no fight; and in the Southern States it is quite a common amusement among ladies to go tarpon-fishing. To look at them, one would think that they could take the body of a man into their capacious mouths, yet they are captured with a very small bait. They are said to sometimes weigh as much as five or six hundred pounds. About two hundredweight is a fair average fish. Their flesh is a delicacy, and one of the dainty dishes of American hotel cookery, as is terrapin (a kind of land tortoise); and not to have feasted on tarpon, terrapin, and canvas-back duck argues you a poor Johnny indeed,

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in United States opinion. All three are very good, and the man who could import them into London would make a pile. Uncle Sam is too wide-awake to permit his canvas-backs to be taken from the country; but the tarpon and the terrapin! Where is the man of enterprise?

I found several species of crabs and lobsters here inhabiting brackish water, for the tide comes up close to Obydos, which is some four hundred and fifty miles from the sea. Most of these, I think, are peculiar to the lower reaches of the Amazon; and altogether I collected over a hundred and fifty species of crustaceans without wandering many miles from the town.

Of the number of species of fish in the river I can form no probable conjecture. It is very great; and many sea-fish ascend the stream as high as Obydos, or higher. I caught upwards of a hundred varieties with rod and line alone, and saw a great many more exposed for sale which had been netted. Many of these fish I suppose to be peculiar to the Amazon, as I never saw any like them elsewhere. The majority are excellent for food. As the river, even at Obydos, resembles an arm of the sea, so great is the body of water, and has a great deal of traffic on it, I could not make so searching an examination of it as I should have liked to do; but near the banks, at places where creeks and small streams ran into it, I sometimes saw immense shoals of small fish, undoubtedly fry recently hatched. The water was simply black with them, and they could be ladled out in buckets by thousands at a time. I observed both fish and water-fowl preying on them. Amongst the fry were many flat-fish, ranging in size from less than a threepenny piece to fish four or five inches across; while I think I may safely say that on one occasion I saw a square mile of the water completely covered, as thickly as they could float, with minute eels not more than an inch in length, and greatly resembling the "elvers" of our western counties.

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Of the Amazonian dolphin I never got a sight in the water; but on one occasion I saw one in the possession of a fisherman who had captured it in his net. It was about four feet in length, and I perceived nothing very remarkable in its appearance. I heard that they are occasionally caught in the fishermen's nets of much greater size than this; but it does not seem to be abundant in any part of the river, or else it is very shy in its habits.

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CHAPTER II

THE RIVER PURUS

After much consideration I determined to make an attempt to ascend the river Purus, one of the largest and least known of the Amazon's affluents, which it joins on the right or south bank. The course of this river was known to be through the heart of the vast forest, which covers the whole surface of Northern Brazil, and in many parts has never yet been trodden by the foot of a European. This circumstance alone was a strong inducement to me: for your traveller who has his heart in his work likes to be the first to penetrate into an unknown region. So, having replenished my stores, and had certain alterations made in the *Firefly* which were suggested by our experiences on the Trombetas, we made a fresh start, and sailed up the river as far as the mouth of the Purus, a distance from Obydos of about five hundred miles. Although we had several favourable breezes it took us seventeen days to accomplish this distance, and it became evident that the *Firefly* was a miserable old tub, ill suited for the work before her. Unfortunately my means did not admit of my purchasing anything very spicy in the way of a craft, and we had to make the best of a cheap but bad bargain.

It is a singular circumstance, a coincidence, that this river had previously, but quite unknown to me, been ascended in a small open boat by a Mr. Chandless. This was twenty years previously to my journey, and I have seen it asserted that he was the first European to ascend this great river, a fact which I doubt, since I found

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undoubted evidence that the Portuguese had been there many years ago. Mr. Chandless may have ascended the river higher than any one else, but I have not seen his book, and know literally nothing of his journey. After my own jaunt up this remarkable river I heard that an Englishman had been there before, but I did not learn his name, and from what I subsequently heard I supposed it to have been Mr. Bates. It was not until long after my return to this country that I heard even the meagre particulars of the journeys of these two gentlemen. It seems to me necessary to offer these few words of explanation, and thus it will be seen why, in my description of the Purus, I make no reference to the works of others. I simply relate what I saw and what occurred, repeating that I did not even know that an Englishman had previously been on the river: for I strictly kept my own counsel in the country, not knowing but that the authorities might interfere, or put some restrictions on my wanderings. It was not until after the journey had commenced that even my followers knew our destination.

I have already said something of the climate of the Amazon Valley. During the months of July and August there were almost daily thunderstorms, but it was rare to have an entire day's continuous rain. In September there was much less rain, and thunder and lightning were exceptional. I noticed that the hottest days appeared to be those on which the wind blew from the north; but the most oppressive weather followed south winds. These brought with them an enervating moist heat, that much sapped our strength and energy. There was often much rain with easterly winds, which is, I think, quite contrary to the rule in Europe. The seasons are certainly very irregular in Northern Brazil. There seems to be more rain at one season than another, but intervals of wet and dry continually recur throughout the year. Similarly with the vegetation. There is more

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fruit ripe from June to October than at any other season, and most of the trees flower in what in Europe we call the winter months, but both fruits and flowers are found abundantly all the year round. Also, it seemed to me there was as great irregularity in the breeding times of the small animals and birds. Concerning this matter, however, it must be remembered that I was constantly moving from place to place over long distances, and locality may have had much to do with the breeding-time of the birds. Perhaps the birds of one district may have had a regular season for breeding, but those of the same species eight hundred or a thousand miles away quite another time. However this may be, I have found young animals, birds, and eggs at almost all seasons in different parts of the Amazon Valley.

During the fortnight we were crawling up the Amazon, at the average rate of little more than a mile an hour, the number of steamers, sailing-vessels, and boats which passed us was sufficient to prove that there is already (1884) considerable traffic on this mighty river. Yet the Amazon is, on the whole, a solitary river. Its vast length and breadth give it almost the superficial surface of an inland sea; and far above Obydos we appeared to be sailing on a great lake rather than on a river, so immense was its width. In many places, especially where the country was flooded, we could not see the opposite bank.

Vast flocks of birds occasionally passed over the river, flying high in the air; amongst those the species of which were recognised were scarlet macaws, parrots, and jabiru storks; besides a great variety of ducks, and birds which I took to be curlews. Sea-gulls were seen on the river as high up as the mouth of the Purus.

We always kept a line towing behind the boat; but not a single fish was hooked during the journey up. A few were caught in a cast net, but the only one that was in

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any way remarkable was a small fish about two inches long and almost as broad, so that it was nearly round in shape though flat—that is, compressed sideways. It was silvery white in colour, with a large golden-red eye.

The Purus is very wide at its junction with the Amazon, and forms a large, flat, and muddy delta, pierced with several channels, of which we chose that which is fourth from the most easterly, but I am not sure that this is the principal, or the best, entrance. However, we found plenty of water in it. I was constantly sounding with a two-fathom line (twelve feet) without finding the bottom, and where we anchored, two hundred yards from the east shore, there was twenty-five feet of water. The channel is quite a mile wide. Like the Amazon, the course of the Purus is much intercepted with islands of all sizes, from a mere yard or two of sandy mud to islands several miles across. They all have low, sloping, sandy beaches, which are much resorted to by caymans and river tortoises; but I noticed that the latter avoided those islets which were frequented by the caymans. Not so the storks and egrets, which walked about fearlessly among the cunning reptiles, and certainly sometimes paid with their lives for their rashness; for I once or twice saw birds of these species, and some smaller ones, such as ducks, snapped by the caymans. All the large islands were densely wooded; but the trees seemed to have been washed out of the soil of the smaller ones, except here and there. Many fallen trees were lying partly embedded in the sand and mud. The mud of both the bed and banks of the river was of a very sandy kind, and could be easily brushed from the clothes when dry. There were myriads of birds of all kinds hitherto noticed on the lower reaches of the river, and the waterfowl covered the mud banks.

I should think that no other river in the world has such a tortuous course as the Purus. It doubles and crooks, and loops back like a crabbed handwriting;

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running now due south, then turning abruptly back to the north, and then making a sharp angle to the west; so that in a hundred miles of river course we sometimes did not penetrate the country in a direct line more than ten to twenty. The Mississippi, and other North American rivers, are much noted for their tortuous courses, but none of them can be compared in this respect to the Purus. It is the same throughout its whole course; there is scarcely a straight reach in it. It flows through what seems to be an absolutely flat country, which is very generally flooded, and the actual course of the river can sometimes only be perceived by the lines of tall trees on its banks. The current is very slow, and often cannot be perceived at all; and there are large areas of almost stagnant water in the bends of the reaches. These spots are full of water-lilies, with large leaves covering the surface, and flourishing where the water is fully twenty feet deep. Some of the stems which I pulled up were double that length, and as strong as a rope. Often, after passing some of the islands, the river swelled out into a broad lake, and it was not without some trouble that we found the true channel. Trees grew so far into the water that we often made fast to one for the night instead of anchoring. These trees had the usual characteristics of Brazilian trees. They were of no great diameter in the trunks, but of very great height—fully two hundred feet; so that birds on their topmost branches were far out of gunshot. As in all the Brazilian forests in this part of the country, many of the trees were parasitical, one species on another. The number of different species was not great, except in places where those of smaller growth than the bulk of the forest had the opportunity of freely developing, as on some of the islands, &c.

Everywhere on the lower part of the river the banks were very low, and showed many signs of crumbling away; and the surrounding country as far as we could

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see was flooded. Many small streams and brooks ran into the main channel on both sides, and at the junction of such streams we occasionally got a glimpse into the interior of the back-country, but as a rule the closely matted forest prevented our seeing a hundred yards' distance on either hand; and it was rare indeed to see a clear mile ahead up the river.

The sense of solitude was intense, and I soon perceived it was having a depressing influence on my companions. During the middle of the day it was unusual for the silence to be broken by the cry of either bird or beast, but in the early morning and again at night there were noisy screams of parrots, macaws, and other birds, and prolonged howling of monkeys. The men tried to cheer themselves with merry songs, but the music fell flat, and they soon gave up the attempt. As it was necessary to keep up their courage, and find them some occupation which should interest them and divert their minds from brooding over their condition, I encouraged them to shoot, offering rewards for rare specimens of animals and birds, and also taught them the art of bird-stuffing, Jose becoming quite expert at this work, so that he soon far excelled his instructor, and most of the specimens brought back from this journey were his work. At evening time I read to them, and they soon took so great an interest in the works of some of our popular authors—particularly Dickens, and such continental writers as Hugo and Dumas—that they would on no account permit me to forego these nightly readings, which were looked forward to as the chief pleasure of the day. In this way I contrived to keep the men in tolerably good spirits, and prevent their breaking down and giving up the work.

When we had ascended the river about a hundred miles, as I suppose, it averaged sixty feet in depth; though there were places where it was deeper, in some reaches as much as eighty feet. Where the banks were

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not under water they usually showed about twenty inches of soft mould, which was fast crumbling away under the action of the water. In not a dozen places in the first two or three hundred miles of the ascent did the banks rise to upwards of a yard in height, and nowhere did we meet with an elevation that could be described as a hill. The most remarkable objects of interest that we saw on the lower Purus were many evident traces of the river having been visited before. Attempts seemed to have been made to establish towns or stations on both banks, but, probably owing to the marshy condition of the soil, all these sites had been abandoned. Looking over the maps I was furnished with (which I found to be not very reliable) I noticed that a few of these sites were indicated; but I was, unfortunately, quite unacquainted with the history of any of these places, or the circumstances under which the intended settlements had been made and abandoned; nor had I made any inquiries previously to starting on my journey. For I was anxious not to provoke the curiosity of the Brazilian authorities, lest I should be interfered with, or hampered in any way. I have not the least cause of complaint against any Brazilian official, but they are a narrow-minded class of men, and I thought it best to keep my own counsel; and so, when I left Obydos, the people there thought I was simply going on a little expedition up the Amazon. The Purus, my intended destination, was never so much as mentioned by me; insomuch that when we entered its mouth George the Venezuelan asked if we were not on the Madeira. It was then that I learned that neither of my companions had ever heard of the Purus before, an ignorance in which they were not singular: for thousands of the lower classes of Brazilians (and all other South Americans) have but the vaguest notion of the size and configuration of their countries.

Near what I should call the head of the delta of the Purus there are a number of mud banks which, I should

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think, would form a great impediment to the navigation of the river by steamboats and other large craft. We got aground here ourselves, but worked off again in about an hour's time, and passed through a narrow channel where we had but five feet of water a quarter of a mile from the shore, though immediately afterwards there was seventy to eighty feet. There may be other and deeper channels; and it must be remembered that I am not sure that we passed into the river by its principal mouth. Most of the tributaries of the Amazon have a bar at their mouth; and often the water is shallow for a considerable distance up the lower reaches.

About seventy miles above the mouth of the Purus a spot is marked on the map as the "site of Florencia"; some city, I suppose, which has been abandoned. We arrived in that neighbourhood on the afternoon of September 30, and carefully examined the ground as we moved slowly along, propelled by the sweeps, or long oars, which we were compelled to keep almost incessantly in use. There was a slight elevation of the ground on the right (east) bank here, and a less noticeable rise on the opposite side; but both banks were closely lined with an unbroken line of forest. Before sunset we arrived at a place where the trees seemed to be of inferior growth to the surrounding forest, and I thought that there might have been a clearing here at some distant date. Accordingly we made fast for the night, and early the next morning I landed in the canoe, taking Jose with me. The ground was marshy in places, but we could walk about freely under the trees, there being neither undergrowth nor grass. A mile from the brink of the river we came to a cleared spot about an acre and a half in extent, with two rough huts or sheds on one side of it. Some persons had been here at a quite recent date, for there was a heap of chips where wood had been chopped which were still tolerably fresh in appearance, and several charred places on the ground showed where fires had

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been made. There was nothing in the huts, and nothing to show what the business of the visitors had been in this very isolated spot.

We walked about for several hours, going some four miles inland from the river. The forest was then so dense that we could not go farther without great difficulty. We did not see the slightest trace of ruins or buildings, or signs that the land had ever been under cultivation, although I thought that it looked as if it had been cleared of trees at some distant date: for the trees at present covering it were of much inferior growth to the rest of the forest. Few of them exceeded eighteen inches in diameter, or were more than seventy feet high. Many of them were dead, apparently killed by the masses of moss and creepers which clustered on their boughs; and some were covered with clusters of red flowers which gave forth a strong and not very pleasant odour. The taller trees swarmed with birds, and many lizards and large frogs were seen, and also a few snakes, none of which exceeded five or six feet in length. An animal like a large rat rushed into a pool of water and disappeared, probably into a hole beneath the surface; and this, with the exception of some monkeys, was the only mammal seen. The monkeys were of two kinds; a small brown one, and a black spider-monkey, remarkable for the extreme slenderness of its body, the legs appearing thicker than the waist. These monkeys were much disturbed by our presence, and kept up an incessant chatter, which every now and then gave place to a prolonged howl. They were chary of showing themselves, but the boldest among them came to the extremity of the branches to look at us. Having gazed for a moment, they frisked away with an angry snarl, and presently came back to look again, repeating this amusing action many times. I saw one or two with young ones clinging to their breasts, the arms and legs being clasped around the mother's neck and body—the usual, but not the invariable, way of carrying

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the young among American monkeys. The report of a gun fired at a bird gave these monkeys such a fright that they instantly disappeared and remained quite silent, and it was not until we got to another part of the forest that we saw any more.

Later in the day, while I was standing under a thickly-leaved tree in which I was not aware that there were any monkeys, one suddenly fell to the ground. It was dead when I picked it up; but it could only at that instant have died, for it was quite warm. A deep bite at the back of the neck, which had broken the vertebra, showed the cause of death. Was this monkey killed by a companion, by a monkey of another species, or by some other animal? I incline to the latter opinion, for there was no noise or scuffling as there usually is when monkeys quarrel among themselves. It was a strange incident, and unique in my experience. The monkey was of the black spider-limbed species, and was a fine, full-grown male, and made a welcome addition to my collection of skins; for I never shoot monkeys myself, not even for "scientific" purposes, having had so many of them as pets that it would seem to me a sort of murder to kill one.

Among birds that I here procured was a sun-parrot. This bird is found in Guiana, but I never saw any in other parts of the Amazonian valley than here. It was tolerably abundant on the lower Purus. The feathers of the neck and the back part of the head form a very peculiar crest, or rather hood, having the rayed shape of the conventional representation of the sun, as many people think, hence the name. Common green parrots were also found here in large flocks, and were among the noisest inhabitants of the country.

Returning to the boat, we pulled her about five miles farther up the stream, and landed at a convenient spot to cook the evening meal, I intending to resume my exploration of the woods the next day. The two men slept on

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shore, but I returned to the boat, which was moored a few feet from the bank, lying down under protection of the half-deck, my usual sleeping-place. About one o'clock in the morning I was awakened by the furious barking of the dogs, and, on arising, saw a bright light shine for a moment about the middle of the river, and before I had recovered from my surprise it flashed forth again, followed by a loud shout. I shouted in reply, and hurried ashore, where I found the men just getting up, having been aroused by the noise. I told them what had appeared, and they shouted inquiries in Portuguese several times but got no reply. It was evident that a boat must have passed down the river, though my two superstitious companions were more inclined to put the mysterious appearance down to a supernatural cause, and shook with fear until their teeth chattered, muttering many a humble prayer to their favourite saints, and were unable to sleep again that night, especially as the dogs kept up their bark for more than an hour, leading us to infer that the cause of their anger was still lingering at hand. This incident, trifling enough in itself, was exciting and important under the circumstances of its occurrence, and I was glad enough when day broke. Eagerly we glanced up and down the river and along either bank, but all was peaceful and still, and as innocent of intruders as the sky above. Up to that moment I had felt confident that we were the only white men on the river; now it was certain that there were others—explorers like ourselves, or what? The circumstance that they had not answered our shouts, or communicated with us, was suspicious; yet what temptation was there here for bad characters, unless, indeed, we were being followed. The reader will observe that the idea that it might be a party of the native Indians never occupied my thoughts. The reason is that none of the Indians of Northern or Central South America ever use boats or canoes of any kind—at least that was my impression at the time, and it is generally true, strange as it

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may seem. The Indians take long journeys through the forests, swimming the broadest rivers with great facility, setting at naught the danger from lurking caymans, and simply using a small log of wood as a support or float. Some few tribes do use what is called in Guiana a "wood-skin," a kind of shallow bark canoe; but this habit seems to be so exceptional and local that at this time I had not heard of it, and supposed all the Indian tribes to be ignorant of the use of canoes. No amount of reasoning or argument would induce my companions to believe that the occurrence of the previous night was other than a supernatural visitation. However, by the time breakfast was finished, and under the influence of the brilliant sunlight, they regained their usual courage, though George the Venezuelan refused to be left alone with the boat. I had therefore to take him as the companion of my rambles, leaving Jose Najas in charge of the craft.

The ground ashore was dry at this spot, and a brook with steep banks, which here joined the river, compelled us to turn south-eastward. The land slightly sloped upward toward the east, but I much doubt if the greatest elevation was as much as twenty-five feet above the level of the river. It was so densely wooded that we could not see the sky, and after literally pushing our way with great exertion for a couple of miles we came to another stream which was nearly a hundred yards wide, and was half covered with giant water-lilies. It soon became evident that we were on an island about two miles in extent, and we walked along the banks of this rivulet, intending to work our way round to the boat again.

As we proceeded I noticed that a flock of turkey-buzzards were hovering overhead, and presently about twenty of these birds flew up from among the trees in front of us. Here was a small clearing, with a rough hut in the middle of it, constructed like those we had seen yesterday, and a fireplace which had been recently used. An old tin pot, with a hole burnt in the bottom of it, left

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no doubt in my mind that the people who had bivouacked here were whites. But my attention was attracted most by a large heap on the ground of what looked like small pieces of raw meat, but which, on examination, proved to be the carcases of birds which had been skinned. The skinning had been performed with a certain amount of skill, the leg- and wing-bones and the heads being severed and carried away in the skins, proving that the latter were required for the bird-stuffer; and I concluded that a party of those rascals who make a trade of catching birds of the finest plumage for the purpose of decorating ladies' hats had found their way hither. Unlikely as it may seem at first glance, there can be no doubt but that a party of those bird-exterminators had found their way to this obscure spot, and reaped a rich harvest among the beautiful feathered creatures which here swarmed in countless thousands, and were, as yet, so tame that many of them could be knocked down with sticks, or captured wholesale by means of nets. Subsequent inquiry confirmed this opinion, for though I could not trace the particular men who had been there, I ascertained that many of those who are employed by the wholesale dealers travel hundreds of miles to unfrequented spots in the forests in search of their lovely prey. These men are a sort of petty hunters, and employ themselves, in the season, in collecting tortoises, iguanas and their eggs for the table, &c., and fill up their time by destroying the birds for the fashion merchant. On the Amazon three or four men in a boat take long journeys, being absent sometimes nine or ten weeks, and returning with a cargo of from three thousand to eight thousand bird skins, all intended as ornaments to ladies' dress. No wonder that some species of birds are almost extinct, even in such a country as Brazil. I wish that the ladies who encourage this cruel trade could have seen the pitiable sight of those mangled little bodies lying in a loathsome heap, to the number of several hundreds, while the disgusting

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vultures lurked in the trees close by, ready to resume their horrid meal the moment our backs were turned.

Near the hut a rough ladder, which had been put together on the spot, was resting against the trees, together with several long poles, used, I suppose, to support a net for the capture of the birds. As I learned subsequently, many are dragged from the holes in tree-trunks where they roost at night; others are attracted to a bright light and knocked down with a stick, or caught in hand-nets. Birds of brilliant plumage fetch good prices, and many kinds, particularly humming-birds, and small, brightly-coloured finches, are exterminated or driven from whole districts in many parts of South America. The men who profit by, and instigate this abominable slaughter, are said to provide the hunters with preservatives to dress the skins with, and instruct them how to strip the birds without injuring the plumage. Near the hut was a large dark patch teeming with ants. That was the blood of the wretched birds which had been killed by having a pen-knife driven into the roof of the mouth to avoid soiling the plumage. Some of these brutal men are said to skin the birds alive, under the impression that the gloss of the feathers is thereby better preserved.

We moved the boat higher up the river and again landed, but it was not until the following day that we discovered some ruins which I supposed must be the site of Florencia. What that place had been, whether city or mission-house, I had not the least idea. I have searched a number of books for information without success, and nobody of whom I afterwards made inquiry at Obydos and other towns on the Amazon could enlighten me on the subject. A great many people, even well-to-do men of position, had not even heard of the Purus, and had I asserted that that river was situated in Patagonia would have blandly agreed with me. "That is so, sir; and a very fine river it is." For a Brazilian's

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notion of politeness is to suavely agree with all you assert, without troubling himself to consider whether you are right or wrong. He expects you to be equally complaisant with him, especially when he is striking a bargain with you.

But Florencia! I supposed from the indications on my maps that there had been mission establishments, or attempted settlements, on the banks of the lower Purus in the early days of the colonisation of Brazil, and that they had been long abandoned. At the conclusion of my journey I made inquiries of a priest at Obydos. He agreed with my suggestions at once. "Yes, there had been missions on the Purus," and missions here and missions there, and, in a word, I saw that he was so concerned for what he considered the honour of the Holy Catholic Church, that he was ready to utter any number of falsehoods in support of it. It is probable, however, that there have been some Jesuitical outposts on this river, as on many others of the great tributaries of the Amazon. But what to make of the few signs of former buildings which I succeeded in discovering I do not know. They were interesting as far as they went, but of trifling extent, and in no case did the ruins seem to be the remains of a town or large collection of buildings. On the day I have indicated I discovered a very curious and handsome iron cross on the right bank about four miles inland. It was entirely covered and hid by the luxuriant undergrowth of the forest, and I stumbled upon it by a mere chance. The base had been formed of rough-hewn stones. They were displaced by penetrating roots and vines, which had also enveloped the cross, which was of wrought iron, and so completely rust-eaten that it fell to pieces on being handled. It was of circular shape, a very fine work of art, and must have been a long time, probably hundreds of years, in the position in which we found it. I supposed it to mark the site of a grave, but no inscription could be found.

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On subsequent days I discovered a few ruins of buildings in this neighbourhood, all of which were buried in a jungle of dense growth, and so much disintegrated by creeping roots that it was impossible to guess what sort of buildings they had originally been. I was disinclined to think that any of them were the remains of a church or chapel, in fact they consisted of a few scattered granite stones, nowhere forming a heap, and so thickly covered with lichens that they had to be scraped before the nature of the stone could be seen. If there had ever been a town or large village here most of the erections must have been made of wood, which had crumbled entirely to dust. Round about appeared to be the primeval forest; there were no indications that the ground had ever been cleared. And from whence came the stone? That is an interesting question, for nowhere on the river did we see any place where granite, or, indeed, any other rock, could have been obtained. It was with difficulty that we could find a pebble larger than a marble near the river; but there are flints in the country somewhere, as will presently appear.

Fluttering about these ruins was a variegated brown bird, with a long bill, which I took to be a woodcock, but now know was a sun-bittern, a bird I had never previously seen. Its antics and mode of flight are peculiar—a sort of flopping, tumbling flight of short duration. The bird pitches very frequently, and is very tame, keeping close to us; but seems to be rather scarce on this river. It was only seen on a few occasions, always singly, or in pairs, and seemed to feed on the margins of shallow pools, or in the smallest brooks. The nature of the food I could not be sure about. In the stomach of one which I killed there was only a thick mucousy substance mixed with the remains of some small crustacean, like a fresh-water shrimp. The bird was usually silent, but sometimes when on the wing it uttered a loud prolonged cry, which I cannot compare

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to that of any other bird. It is weak on the wing, and never flies very high, but prefers to flop along close to the ground, pitching every few yards to look round about with an old-fashioned air. One that I saw fly across a small river trailed its legs in the water several times; in fact the general habits of this singular bird are much those of a rail on the Purus; but in Guiana, where the bird is much more frequently seen, it assembles in small parties, and is often seen at a considerable distance from water. I found a sun-bittern's nest in October with four young ones in it. It was roughly constructed of coarse grasses lined with feathers, and placed among sedge some yards' distance from the water's edge. A similar nest which I found on another occasion was placed almost touching the water, and contained four greyish-green eggs, speckled all over with rust-colour. I believe that this was a sun-bittern's nest, but I am not sure of it.

A great part of the month of October I devoted to a series of excursions up the tributaries of the lower Purus, using the canoe, and generally going alone as that craft was rather small for the accommodation of two travellers. On the most important of these jaunts I was away from the boat three entire days, and penetrated at least a hundred miles into the interior of the country, which was as far as this unknown stream would permit me to go. This river seemed to be indicated on one of the maps in my possession, but it was not named, nor its true course laid down. The whole distance it ran through a forest-clad country, the equal for density of which I have never seen since, often in its narrowest parts forming a tunnel so dark and awe-inspiring that I was almost afraid to proceed. After the course had narrowed to fifty yards broad I never saw the sky, nor caught the faintest glimpse of sunlight, the trees meeting overhead, and forming an impenetrable lacework of boughs. The lower branches of the trees and the vines were almost leafless, owing, probably, to the want of light, the foliage cluster-

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ing to the top of the forest. Those giant creepers and trailing plants that seem to be the characteristic of all tropical forests were here hanging in the wildest confusion, often hanging into the water right across the river, making the navigation extremely perilous and compelling me to try repeatedly before I could discover a free course. The rushes and grass were pale of colour, almost white, but of vast growth, resembling a cane jungle. After the first dozen miles the river was never more than sixty or seventy yards broad, but it was fully twenty feet deep; and that depth was maintained almost to the farthest point I reached, which, as I have said, I believe to have been fully a hundred miles from the Purus. What the country on either hand was like it was impossible to see. There was no possibility of penetrating twenty yards even, right or left. There was no perceptible current, and the water was in many place absolutely stagnant, and swarmed with caymans which seemed to be but little disposed to get out of my way, insomuch that I was repeatedly placed in great jeopardy. Ultimately I was compelled to turn back owing to the impossibility of forcing my frail craft through the thick growth of water-plants.

Animal life of the higher forms was exceedingly scarce in this gloomy place; but the monkeys often came down the vines like a lot of sailors from aloft. Nowhere have I seen the monkeys so tame, or expose themselves so fearlessly. They are among the most cautious of the forest animals as a rule, and keep themselves carefully hidden among the leaves; but here they came down to within thirty or forty feet of me, looking like satyrs in the dim light. They kept up an incessant chatter, and continually leaped backwards and up and down the rope-like trailers; yet curiosity seemed the sole cause of their activity, and they made no hostile gestures. Their proximity was a source of some danger to me, as they attracted the caymans, which seemed to be

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particularly ravenous. I was obliged to shoot many of these reptiles to prevent an attack on the canoe, until my ammunition ran short. At the report of the gun, which boomed very loud in this confined place, the monkeys disappeared into the black recesses aloft in an instant, but they soon came down again, and followed me for miles. They were of both sexes, and all sizes, and most of the females carried young ones on their backs or shoulders; but sometimes these monkeys and other spider-monkeys carry the young on the breast with the legs and arms clasped round the body. I mention the circumstance because it has been disputed. As is often the case, what one traveller sees and notes, another does not.

Of the species of these monkeys I can say nothing reliable. They were brownish grey in colour, inclining to lightish on the breast and belly, and were much smaller in size than the black spider-monkey. Generally speaking, it is not easy to distinguish species of monkeys while they are wild in the trees. Many of the spider-monkeys differ but slightly in outward appearance, and are, in my opinion, simply local varieties. There are several dozen species of monkeys in the forests through which the Purus runs, but they have not all prehensile tails, and several of them are those tiny creatures known as marmosets.

These monkeys probably perceived that I intended them no harm, though the report of the gun startled them for a time. It is the sole occasion in all my experiences on which I have known monkeys display sufficient confidence in man to expose themselves freely to his view. All the South American monkeys go in troops or family parties, numbering from a dozen to sixty or seventy individuals. This was one of the strongest troops I ever saw, numbering fully a hundred members.

The trees all along the banks of this river were of the usual straight-trunked, tall kind. Occasionally I could

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glance up a great trunk to an enormous height, without seeing to anywhere near the top; and creepers, and festoons of moss hung down hundreds of feet into the water, sometimes in such heavy masses that I nearly upset the canoe in trying to force a passage through. Not infrequently great trees had fallen right across the stream, forming natural bridges under which I, once or twice, found it difficult to make a passage. Hundreds of the trees were dead—killed by the mass of parasites which cling to them. The only trees which had trunks remarkable for the greatness of their circumference, were a dwarfed kind with widely spreading, thickly intermeshed branches, the squat trunks of which seemed to be fourteen or fifteen feet in diameter. There was fruit on some of the trees, and a species of nut of large size and oval in shape, which I had never seen before. I saw the monkeys breaking it by beating it on the branches; and I tried it myself, but the taste was rank and peculiar, and not likely, I think, to please any human palate.

In the gloomy forests on the upper part of this river there were scarcely any living creatures other than those which I have mentioned; but lower down, where the stream was broader and the sky could be seen, there were a few birds, among which I saw the jacana, or spur-winged water-hen, remarkable for the great length of its toes, which enables it to run with facility over the broad-leaved water-plants floating on the surface of the stream. I heard the bell-bird also, as we did on every part of the Purus; and there was a glossy green water-rail on the open reaches; and a small bird (perhaps a tiny rail) about the size of a thrush, whose plumage was a bright chestnut colour, with a grey throat, and blue on the wings, which had a curious habit of fluttering in the water at the edge of the river.

A few small lizards ran about the tree-trunks, and there was a huge salamander, nearly six feet long, sitting on a tree-root which was partly submerged. As I

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approached him he dropped into the water with a loud splash, and swam rapidly and gracefully away. Bull-frogs were very abundant, and at night kept up a loud bellowing noise.

Though I am in my element in the wilderness, and from long habit have learned to love solitude, yet I must confess that the gloom of this remarkable forest, which I correctly describe as a tunnel of tall trunks, tried me greatly during the three days I passed in it, and I do not think I could have endured the strain much longer. During the day I could not leave the canoe, for there was no place to land; and at night I was afraid to lie in it for fear the caymans should drag me out, so I pulled myself some dozen feet up into the trees, settling myself between the forked branches as best I could. But sleep was almost impossible. I was haunted by fears that I should fall from my ticklish perch, or that by some accident the canoe would break from its moorings below, and leave me a prisoner in the trees.

The monkeys used to come down to the water to drink very early in the morning, which they did by lapping like other animals. On the second morning a party of large brown monkeys were about fifty yards from me, taking no notice of me, and sitting on the large tree-roots which stretched far out into the river, just above the surface of the water. They went down to drink, one or two at a time, till suddenly the ugly black snout of a cayman bobbed up from beneath and seized one of them. The poor little animal uttered a horrible shriek; but it was dragged under water in a moment. So quickly was the tragedy enacted that I scarcely saw what was taking place before it was all over. The commotion among the monkey colonies was tremendous; they howled, danced, and flew from tree to tree like creatures suddenly gone mad. Other monkeys, of different species, assembled at the spot, and the hubbub was deafening; all, however, keeping high up out of harm's way. They were still in

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commotion when I finished my breakfast and went on my way down the river. I had previously seen the monkeys several times, when drinking, rush suddenly up into the trees, and guessed the cause. No doubt they could perceive the approach of the caymans in the water; but on this occasion I suppose that the cunning reptile hid under the bank or a submerged tree-trunk. I should think that they do not often succeed in surprising the monkeys, the latter are so quick and intelligent. How the caymans sometimes get an abundant feed was exemplified this day. I was suddenly startled by an extraordinary rushing sound above, and scattered hailstones, as big as pigeon's eggs, fell into the water. Doubtless there was a very heavy hailstorm above; and the impervious canopy overhead prevented most of the hailstones reaching the water. Nevertheless some of the largest, intermingled with broken branches and leaves, fell about my head. There came down, also, a monkey, and several other small animals and birds which had been killed in the storm, and no doubt afforded delicious morsels to the lurking reptiles below. Before I got out of the river a large cayman rose not two yards from the bow of the canoe, and evidently intended an attack. I quickly banged both barrels of my gun, loaded with ball, into it; and it disappeared as suddenly as it came. I do not know if it were killed or not; and I need hardly say that I did not stay to make inquiries. A canoe is a somewhat frail kind of craft in which to encounter a cayman fifteen feet in length.

My companions were very glad to see my safe return. They had a great objection to being left to themselves, and were not at all charmed with the solitary life we were leading. Moreover, like all South Americans, they were very superstitious, and continually tormenting their minds with imaginary fears. Yet I found them amenable; and when I was with them they worked well, and we got on together without friction, if not with

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positive friendship. But I am bound to say that for the pluck and determination to see a thing through which is necessary to the success of such an expedition as this of ours, there are no men to be compared to good British seamen, or Uncle Sam's boys.

During my absence George and his companion had amused themselves with fishing, and had had great success. The river was full of fishes of a hundred different kinds. There was a monster with a head like a cat-fish, and teeth as sharp as lancets; which was very good eating, however, with more flavour in its flesh than is usually found in fresh-water fish. But in George's opinion the most dangerous fish in this river was a little wretch, weighing scarcely a quarter of a pound, which he called a river-devil or blood-sucker, and asserted that half-a-dozen of them were capable of killing a man, and that it was unsafe to bathe in rivers which they infested. I cannot confirm the story from my own experience; but the fish, small as it is, is certainly provided with exceedingly sharp teeth, set in such a manner, in a pug-dog-like kind of jaw, that they are capable of inflicting a very nasty wound. The fish is like roach, with the exception of the head. George says that they abound in many Venezuelan rivers, in all of which it is unsafe to bathe. I did not try bathing in the Purus, but it was fear of the caymans, not the river-devils, which prevented my doing so. The Indians affix the teeth of this fish to a piece of wood, and use it as a rasp or scraper, so it may be realised that they are very sharp and strong. Jose was also acquainted with this fish, and called it the "piree," and that seems to be the name by which it is generally known in Northern Brazil, to which region it seems to be confined, and to Venezuela. I may remark that an enormous net of rivers, all communicating with each other, covers this district, the Amazon being connected with the Orinoco, and these two rivers with their great tributaries affording, in my opinion, at least 50,000 miles

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of waterway, to all of which the fish of any one river or district might have access if so disposed. This piree, or devil-fish, is the *Serrasalmus piraya*.

Other fish caught in the Purus were eels of very large size, and fish resembling barbel and dace and roach and chub—some of which weighed as much as twenty pounds, but they were of little value as food. There was also a singular fish, which seemed to be something of a climber. I saw it clinging, by means of its pectoral fins, to branches and roots of trees in the water, and working itself up and along them, with what object I could not discover, but probably in search of water-insects. Sometimes we saw quite a cluster of them clinging to a submerged bunch of roots, and moving along the fibres with little hop-like shuffles, but never quitting the hold with their fins. I never saw them come above the surface of the water, and probably they do not do so. From the singular habit of this creature we used to refer to it as the walking-fish, but it is quite distinct from the climbing-perch of another region. It is about a foot long, and perch-shaped, as are three-fourths of the fish in this river. There is also a very long, slender fish, with a beaked snout, resembling a sea-pike. We never hooked this fish, but a few were caught in a net, the longest of which measured forty inches. It burrows in the mud of the bank, and could often be seen in shallow places. Amongst fish remarkable for their coloration was one striped with brown, like a tiger, and another spotted with black, while a third was dull black with a white belly. All these fish were of small size, not exceeding a pound in weight. Some of the eels were six feet long, and very rank in flavour. I observed no particular difference, size excepted, between them and the common eels of English waters. Few of the fish found in this river and its tributaries are eatable, or at least possessed of much flavour.

In the smaller rivers we found great numbers of

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fresh-water mussels with bright green shells, and swarms of small crustaceans, mostly resembling shrimps, besides many snail-like molluscs, and water-beetles and water-spiders. Our old enemies the mosquitos had prosperous colonies on all these rivers, but I have said so much about them in my former book that I do not feel at liberty to say more here. It will be understood, unless the contrary is stated, that we nightly paid toll of blood and patience to those ravenous little wretches.

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CHAPTER III

CONTINUATION OF THE VOYAGE ON THE PURUS

We continued to slowly move up the river, sometimes poling close into the banks but more usually working our large oars or sweeps, as the depth of water was against the free use of the poles; and we were singularly unfortunate in the matter of winds, which were so unfavourable that I do not think that we had the sails set on a dozen days during the whole time we continued on the river. There was as much as ninety feet of water in the middle of the river when we supposed that we were more than two hundred miles above the mouth. I should mention, perhaps, that I had no means of keeping an accurate record, and the distances mentioned in this work are entirely conjectural, unless otherwise stated. At the point we had now reached the river was still a mile broad, with the country flooded on both banks, and occasionally the expanse of water was so great that we seemed to be in a large lake, with clusters of trees standing out of the water. The stream was much divided by islands, some of them of large size, and thickly wooded and clothed with jungle. Birds and small animals greatly abounded, and were mostly so tame that I had never previously seen anything approaching their indifference to the presence of man in any country. I think it would be tedious to give a list of them here, and read too much like a catalogue. I therefore only notice these birds and animals as incidents of interest occur concerning them. Down to this time we had seen neither large animals nor Indians; but two days after my journey up the nameless river, at

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about four o'clock in the afternoon, George called my attention to a naked man who was watching us from behind the shelter of a tree-trunk on the left bank. As soon as he perceived himself discovered he disappeared into the forest, we being at the time not more than a hundred yards distant, having just cast anchor for the night. As far as was noticed in our cursory glimpse of him he had not a rag of clothing of any kind upon him, and was holding in his hand what looked like a short bludgeon. After darkness set in the dogs became so exceedingly restless that I knew the Indians must be lurking at the edge of the river; and as we could not tell what disposition they bore towards us, we thought it well to move farther out into the stream, and keep a strict watch all night with the dogs loose in the boat. The night, however, passed very quietly, and early in the morning we thought we could perceive several figures moving about among the trees. I determined, therefore, to try and communicate with these people, ascertain their intentions, and endeavour to conciliate them. Accordingly, immediately after breakfast, Jose and I landed in the canoe, taking no arms with us, except our pistols in case of an emergency.

At this particular spot the bank was six feet high, with the ground sloping up beyond, but to no great extent; we had therefore some difficulty in finding a convenient landing-place, one where we might safely leave the canoe in an easily accessible position in case we had to fly. The country was more open than any I had yet seen on the river, with tall trees growing as in a thickly wooded park. There was a brownish grass on the ground under the trees, and a considerable tract of land seemed to rise above the surrounding morass. There were no signs of the Indians, but I felt pretty sure that they were lurking at hand and watching us; so we continued to saunter about for two hours, keeping near the river's brink, and with the canoe never out of sight, and at length our

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patience was rewarded. For by-and-by three men hesitatingly showed themselves, in evident doubt whether they might safely advance. I walked towards them waving a white handkerchief as a signal of peace, generally understood by even the most savage and unreclaimed of men. They permitted me to go close up to them, and others joined us, until there were nineteen men standing around us. They jabbered away incessantly, and I, in return, talked to them, neither of us, of course, understanding the other; but I had brought a few articles in my pocket which I thought might be attractive to them, and these they eagerly took, especially two or three pocket-knives, which I had to show them how to clasp and open. They soon learned the trick of these; but a pair of scissors puzzled them greatly, until I snipped off a lock of one fellow's hair. Then, amid much amusement, they began to snip each other's hair, a process some of them objected to, but good-humouredly, and then there was much boisterous chasing of each other, with noisy laughter, and we were soon on excellent terms with each other without the interchange of a single intelligible word. One or two of the older men had on a loin-cloth; the others were absolutely naked. There could be no doubt that they were of the same race as the semi-civilised Indians I had seen in Brazil, but were sunk in a truly deplorable state of neglected barbarism, much resembling that of the savages of Patagonia. They were all males, and their ages ranged from about sixteen to sixty. There were no feeble old men amongst them, nor did any one seem to have the authority of a chief. The only weapon they possessed, or at all events showed, was a sort of tomahawk or brainer, made of a sharp flint fixed to a short wooden handle, in some cases through a hole in the flint, and in others it was simply tied to the stick with string made of vegetable fibre. The flints were so broken as to flake into sharp edges or wedge-shaped pieces, and the weapon did not seem to be a very formidable one. It was carried

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in the hand, but when the owner wished to use both hands he transferred it to his armpit, held it between his legs, or even in his mouth. A few of the men had necklaces made of fishes' teeth strung together in an ingenious manner, and some had large teeth thrust through slits made in the lobes of their ears. One man had the stone of some sort of fruit affixed in a similar position. These were the only ornaments which they possessed.

We became such good friends that we could not part, and when we prepared to paddle back to the boat they tried to prevent us. Finding that they could not do this, they all, except two, entered the water, and swam off to the boat. Those that could clambered into her; and there was a great deal of rough horse-play among them, pushing each other into the water, and dancing about the boat with the wet streaming from them; so that they soon became a nuisance, especially as we had some difficulty in keeping them from the dogs, which were wild to be at them, and which they took a pleasure in tantalising. But I was only too happy to be on friendly terms with these poor creatures, and any hostility on their part would have been a serious matter for us.

After a time the bulk of our friends, finding the boat too small to contain them, swam back to the river's bank, leaving five only with us. These men stayed on board all day, and partook of our dinner. They displayed no fastidiousness, but ate and drank all that was offered to them. They did not attempt to help themselves, and their behaviour was exceeding good during the meal. They appeared especially pleased with the hot cocoa; but later in the day made a wry face at tea, though they drank it. When salt was offered them with some of their food, they each put a large pinch in their mouth and swallowed it with manifest enjoyment. This they all did several times, consuming as much salt as would have proved an emetic to either of us. Sugar they also liked; but the few mouthfuls of bread which

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they swallowed were taken, I think, only to please us, or because they did not like to refuse it.

One only of these Indians left us at the approach of night; the others slept on board, which compelled us to keep a strict watch again as a matter of precaution. During my watch one of them was severely bitten by a dog. It is my opinion that he was endeavouring to unchain the animal in the hope of taking it off. The dogs were an object of interest to all the Indians, who appeared to prize them greatly. At daybreak several more Indians came off to the boat, swimming with great ease and grace, and had a long confab with those who had passed the night with us. Breakfast was preparing at the time, and several of them put their fingers in their mouths as an intimation of their desires. This was rather more than I had bargained for, and it was a serious matter to me to find a meal for a dozen extra men, especially as we had killed no big game since entering the river. However, they were fed, and I must say that our friends certainly earned their food. For as soon as we began pulling up stream they all lent a willing hand at the sweeps, and though, I suppose, none of them had ever touched an oar before that day they displayed remarkable aptitude for the work, and soon pulled quite skilfully, so that by afternoon we had gone so far that they wanted to stop. I suppose that we had reached the limit of their territory, and I thought this a good opportunity to get rid of them, for I could not afford to feed them, and yet could not have the heart to eat myself, and refuse them food. So the men continued pulling up stream, until our friends, one or two at a time, all left us. The last we saw of them several were standing on the bank, shouting and waving their hands for us to come back.

It was quite dark when we anchored, and there were other Indians about, for we could see the reflection of their fires in the forest flickering above the tree-tops. The sky was quite lit up by them on the right or

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opposite bank of the river to that occupied by our friends. As there was probably hostility between the various tribes this was, no doubt, the reason that they left us at the end of the day.

Thereafter we noticed some change in the characteristics of the country on both banks of the river. The ground was not so absolutely flat as hitherto; nor was the forest everywhere so closely grown and impenetrable, and there were large tracts that were not flooded. The river also began to noticeably contract in breadth, though still, in most places, over forty feet in depth. Its course was still full of small islands, which sometimes split it into three, four, or even five channels. Nothing that could be called a hill was seen on either hand; though in one place the ground might almost be described as undulating. For the most part the country was as flat as the surface of the river, but we got some extensive views into the interior of the country, and in the distance several lakes, or extensive tracts of inundated country, could be perceived glittering in the bright sunlight.

The morning following the first meeting with the Indians nothing could be seen of our friends, or of those who undoubtedly occupied the right-hand bank. By keeping in near the banks we found that we could now pole with facility; but for some undiscoverable reason the water on the right-hand bank was much shallower than on the left; the bottom being, as elsewhere in this river, a sandy mud, with many large trees lying buried in the shallows, which made the navigation a ticklish and dangerous business. We escaped almost without accident, though Jose had a narrow escape, through falling overboard. He was pulled up again almost instantly, yet a large cayman was within two feet of him as he was drawn over the boat's side. Another second and it would have had him. I have already noted that the caymans in this little-frequented river are much bolder

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than in any other parts of South America visited by me; they are, in fact, usually very shy and cunning. This particular cayman followed close to the boat until it was shot. Frequently caymans lurked about the boat, evidently watching for a chance meal. We hooked several with a specially contrived hook of half-a-dozen barbs. Two of these monsters broke away with the hook, the others were killed with an axe; but not without a sharp and dangerous fight. Part of the flesh was eaten; and though I have nothing to say in its favour, it is sometimes a useful substitute for fresh meat.

There were many shallows in this part of the river, mostly near the right bank, and some of them were covered with an indescribably huge multitude of the larvæ of some insect not identified, which attracted many water-fowl, rails particularly, which were raking it up and feeding on it, as were many fishes also. The rail here referred to, which was seen on all parts of the river except near the mouth, but was more abundant here than in other parts, was of a bright green colour, with white beneath. I think I have forgotten to mention that magnificent water-lily, the *Victoria Regia*, which often covered acres of the surface of the river. The flowers, which are often described as being white, were here of a faint rosy hue, like blush roses; and the under surface of the leaves were rosy red in colour. Some of the leaves were as much as seven feet across, and the water-fowl ran over them with the same speed and ease as on level dry land. It is quite certain that a child ten or twelve years of age might have sat on one of these leaves with perfect comfort and safety. In fact we saw one of the large otters found in the upper reaches of the Purus mount on one without breaking it or causing it to be submerged; and occasionally there were at least thirty or forty large water-fowl perched on a single leaf. The leaves of this lily are a favourite resting-place of many other birds besides water-fowl; while the rails habitually

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resort to them. There are several other species of rail here, besides the green one referred to above. One is very much like the English water-rail. And there is a very much larger rail or water-hen, of a liver, or chocolate colour, with a few white spots about the head and neck looking like flakes of snow. This bird is the largest member of the family on the river, being much larger than a hen. When in the sun its plumage shows very fine reflections of blue and golden colour. I have seen it in other parts of Brazil far removed from the Purus. Although there are vast numbers of water-fowl on the Purus, the duck family is not well represented. I shot a teal which so strongly resembled a species in the Southern States of North America that I should be greatly surprised to find it is not a migrant from that region. Indeed, the number of birds which I found in the northern parts of South America which, to all appearance, were identical with species in the States, was so great that I am convinced that they migrate freely between the two countries, difficult as it may be to understand the object, seeing that food must be abundant in both countries all the year round.

As we arrived in a part of the country which was not so completely flooded as that bounding the lower reaches of the river, we gradually met with larger animals; and there were also other signs of a change in the fauna of the country, although most of the species found lower down were still present in varying numbers. One morning we noticed a great commotion amongst the monkeys, and approaching the bank to learn the cause soon discovered a large jaguar sitting on the limb of a tree which projected over the water at a height of about twenty feet above it. Whether he had made a raid on the monkeys we could not discover, but they had come down in large numbers to "swear at him," as George said. Probably they recognised him as a dangerous enemy. They leapt about him with wonderful agility,

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active as these animals always are; but never approached near enough to give the jaguar a chance to seize one of them. As we neared him, he climbed down to a lower bough, and after looking at us in a surprised way for a minute or two, dropped into the water and swam to an island, where he disappeared in the thicket. All the large cat-like animals readily take to the water; but it is quite the element of the jaguar. I have never seen these animals far from a river; and a thickly wooded island in the midst of the stream is their favourite haunt. Travellers, therefore, should be very cautious in landing on such islands; for the jaguar is a dangerous animal, and, unlike other cats, has the habit of voluntarily attacking human beings. He is also the slyest of them all, and the fact that he frequently makes his attack from the branches of the overhanging trees greatly intensifies the danger. The boughs of a tree are its natural lurking-place; and you seldom see a jaguar except up a tree, or in the water. That is my experience; but it is said that jaguars are found in some parts of the treeless Pampas. I have seen numbers of pumas on the open plains, but have rarely met with one in the forests. On the other hand I have never seen a jaguar except in the forests, close to rivers of considerable size. But it should be remembered that what one man sees, another may miss. I am not casting a doubt upon the fact that jaguars may occasionally be found on the open plains; but I am inclined to think that it is the force of circumstances only which drives them to such haunts. So fond are jaguars of lurking in thickly wooded spots surrounded with water, that I have known a pair occupy an island in a lake that was fully three English miles from the shore. So it is superfluous to say that they are excellent swimmers.

The monkeys which were disturbed by the presence of this jaguar were black spider-monkeys, with reddish faces. There are two kinds of black monkeys on this

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river, distinguished only, as far as I could see, by the colour of their faces. The other kind have dusky, or sooty, faces. It was only the circumstance that the two kinds kept strictly apart, although occupying the same district, that induced me to believe that they were otherwise than varieties of the same species. They are the largest monkeys on the Purus; but all the American monkeys are small animals. The number of species of monkeys inhabiting the forests on the Purus is at least twenty, and possibly there are many more, for it is not likely that I noted all. One, very abundant in numbers, was a squirrel-like little creature, much smaller in size than the spider-monkeys; indeed, only some eleven or twelve inches in length of body, but furnished with a very long tail, which is not prehensile. The colour of the fur is a dark grey, inclining to black in places, the face white, with a black muzzle, and the ears pointed and tipped with pencils of hair like those of the squirrel. It goes in small troops of sixty or so, like most of the other monkeys. None of the monkeys are seen in great troops, a hundred being about the greatest number ever seen collected together; and none seem to be solitary, nor are odd ones, ejected from a troop, ever met with. Howlers are the scarcest monkeys of this region, though they were occasionally heard and seen; there were four or five species of marmosets, some of which were no bigger than rats. One of these marmosets was the species very common in the Amazonian Valley, known as *Hapale jacchus*. Another had a white body with a black tail, and is probably *Hapale melanura*, although an authority strongly doubts that it is so, declaring that the black-tailed marmoset is not found in this part of Brazil. The black-tailed marmoset of collections I have seen does not resemble my monkey in much except size and colour of the tail. As I have already mentioned, I shot no monkeys, and the two or three skins secured during this journey were obtained by accident; but recognising the

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importance of identifying species, I have examined several collections of stuffed specimens, with no great results. I can say, however, that several of the marmosets, and other monkeys met with on the Purus, were not seen by me in any other part of South America, nor have I found specimens of them in any of the collections I have visited. I infer, therefore, that they may be new.

The day after we had seen the jaguar seven small deer were observed to come down to the river to drink. As we were much in need of fresh meat, we launched the canoe, and went after them. They were not particularly shy; but as one or two disappeared among the trees as we approached, apprehensive of losing them all, I fired while we were still more than a hundred yards distant. None dropped, and though I gave them the second barrel, they all got away. There were splashes of blood on the bank, and hoping that one of the deer might be badly hit and soon drop, we landed—that is, I and Jose—and went inland. As we advanced I noticed a decided change in the character of the country. The ground was dry, and we could walk among the trees without much difficulty. Many of these were of kinds not seen lower down the river; of enormous height, and not throwing out branches from the trunk at a less height than eighty or ninety feet. The tops of them were full of macaws, which were far out of gunshot; but this part of the forest seemed to be deserted by the monkeys. For the first time since we had been on this journey we saw a large snake, about nine feet long, probably a young anaconda.

Encouraged by the ease with which we could walk, we went on and on, attracted by some fresh feature of the country, until we were about five miles from the river, when a vista in the trees permitted us to see a large lake about a mile farther on. It was a beautiful sight, for the body of water was of great extent, and there were several grandly wooded islands on its bosom. The day was too far advanced to permit of our going farther then, and it

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was necessary to turn back immediately to give ourselves time to reach the boat before dark; but I determined that we would examine this lake the next day.

We saw many tracks of deer, but could not find any of the animals. We also saw the track of a large feline animal, no doubt a jaguar. Birds were very plentiful, except small ones, and so tame that we knocked many down with stones, these being needed for food. Amongst others we obtained a kind of wild turkey, the maroudi, one being knocked down as it was feeding on the ground, and another shot, after which they flew up to the tops of the trees, where small shot would not reach them, and my efforts to bring one down with a bullet proved futile. I shall have more to say about these birds presently.

On our way back we passed a large tree in which were hanging at least a thousand of the large vampire-bat, improperly so called, for if by "vampire" is meant a blood-sucker, this bat is certainly guileless of any such habit. As we also discovered another very curious bat feeding *on the ground*, this seems to me to be a fit place to mention the bats generally that we noticed on this river. They numbered no fewer than thirteen distinct species, and it is very probable that the number noticed by us does not exhaust the list. The great vampire does not attain to such a size here as those I saw on the river Trombetas, where specimens were killed which were nearly a yard in expanse of wing. I shot a few on this part of the Purus, which appeared to be the largest in size; but none of them had a greater expanse of wing than a bare thirty inches. I got two alive, but they did not prosper in captivity. One died, and the other was released to save its life. They would eat but little in captivity, and then only certain wild fruits which I cannot name, though one seemed to be a kind of wild guava. The others were soft berries. The bats never swallowed the stones of the fruits, or the seeds, and I could not induce them to eat any sort of animal food, not

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even small insects. I read in several works that insects have been found in their stomachs. If so, I am convinced that they were swallowed accidentally when eating fruit. Fruits are the sole natural food of this bat, and a careful examination of their viscera confirms me in this opinion. The stomach and intestines are as different as possible from those of the true vampire, which latter is specially adapted for a diet of blood, as I am sure any anatomist would immediately acknowledge.

Bats, in general, in America, differ greatly both in appearance and habits. I do not know, or at least clearly understand, on what principle professional naturalists divide them into families; but to such an observer as myself one peculiarity of appearance seems at once to divide American bats into two great divisions—those with typical bats' heads, and those with heads that resemble those of minute foxes. The latter are generally pretty, if not absolutely handsome little animals, while those with typical bats' heads are grotesque and often horrible-looking creatures. The latter are all insect-feeding or blood-suckers; the former, frugivorous, though with most of the bats there is no hard and fast rule with regard to their food. Thus, most of the insectivorous bats eat fruit also; but some eat animal food of a more solid and decided nature than insects. The great vampire (as, for distinction's sake, we will continue to call it) is an exception to these remarks. The skin is drawn up from the lips in such a way that the teeth are exposed, and the animal seems to be afflicted with the sardonic smile. There is a spearhead-like "nose-leaf" standing straight up from the snout, and the whole appearance of the animal is exceedingly impish and threatening. It is, however, a most harmless creature, and those which I handled while alive never made the slightest attempt to bite, but struggled a little with impatient desire to be free, and uttered a curious cry like "tunk, tunk": a sound between a chirp and grunt, low pitched, and scarcely to

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be heard by a person standing twenty yards away. The nose-leaf referred to above is a feature of many of the bats, varying much in size and shape, and is supposed to be a sensitive organ, enabling the animal to avoid obstacles when hawking by night. It is supposed to largely supersede and supply the place of eyesight. An examination of bats in general will show that none of them seem to have that great development of the eye which is usual in animals which prey at night.

In the typical bats the skin of the face is usually puckered or frilled in an extraordinary manner, giving the animal a repulsive and, in some cases, a horrible appearance. In some cases the mouth is small and narrow; in others it reminds one of that of a bull-dog; while the ears are often enormous in size, and, proportionately, far exceed those of any other animal. The largest-mouthed bat that I saw on the Purus, or, indeed, in any part of America, was the bat I have described as crawling on the ground; but it must not be supposed that this bat is incapable of flight. It is not very abundant, but from time to time we observed it on the upper Purus. It is not a large bat; the body being the size of that of a small rat, and the expanse of wing fourteen or fifteen inches. It has the power of folding the wings in such a way that they offer no impediment to its free movements on the ground, or on tree-trunks, about which they crawl with facility. On the ground it may be almost said to be capable of running, so swiftly does it move; and when endeavouring to capture them they would elude the hand by a skilful sudden turn or backward movement. They made no attempt to bite, though they had sharp incisor teeth which are much larger than in any other bat of their size. The ears were large and round, and there was no nose-leaf. Careful watching of these bats enable me to say that they frequent the ground in search of prey. I have seen them capture beetles three inches in length, the elytra of which they rejected.

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Worms, large grubs, and slugs also, are greedily devoured by them; and they eat enormously for their size. Some that I kept in captivity lived a long time, and would, I am convinced, have lived longer under more favourable circumstances. My wandering life, it will be understood, was not conducive to the longevity of pets. Occasionally these bats would consume an enormous quantity of food. They were always hungry—always ready to eat, and often quarrelled at feeding times, biting each other sharply, so that some of them became quite ragged about the ears. They would feed from my fingers, and uttered a sharp disjointed cry when they saw me preparing their food. In consequence of what I saw in another bat, I tried these bats with raw meat, which they ate freely. They would also eat river-mussels and snails, which I picked from the shells for them; and even raw fish, though they would abandon this latter diet for any other kind of food. Cooked meat and fish they would not touch, nor any kind of fruit or vegetable. I tried much to induce them to take blood. They would not touch it, either coagulated or while liquid. They would crawl about the floor or the ground nearly as fast as a man can walk, and they could ascend very smooth tree-trunks. When they wished to fly they would ascend a table leg or the wall for a few feet, and then, dropping, fly round and round the room. Those at liberty in the forests resume the wing by first climbing a tree trunk.

There was another bat which seemed to belong to the same genus as this crawler, which ate animal food. I saw one eating a young bird, but I cannot say whether the bird had been taken from a nest or found wandering. The victim was held firmly between one foot and the claw on the wing. One evening I am almost sure that I saw a bat of this species seize a smaller bat while on the wing. Unfortunately I never succeeded in obtaining a living specimen, and so was prevented from trying conclusive experiments with it. It is a small bat of a

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brown colour; and it is worthy of note that all the fiercest and most destructive bats in South America are of small size.

The true vampire is also a brown bat of small size; indeed its body is scarcely bigger than that of a good plump mouse, with an expanse of wing of about a foot. The intestines of these bats when stretched out straight scarcely exceed in length their bodies; while those of some of the frugivorous species have intestines fourteen or fifteen times the length of their bodies. This circumstance alone is sufficient evidence that the food and habits of life of the different species are widely divergent. Notwithstanding the fact that everybody in Brazil knows that these bats live on blood, it is extremely difficult to obtain reliable information about the creature's habits in this respect. I have, however, I think, collected a few facts that may be worth recording in spite of the vast mass of matter that has already been written on the subject. It is said that the vampire always bites the flanks of horses and cattle and the great toes of human beings, and the reason for this has been spoken of as a mystery. I see no mystery in the circumstance. With regard to cattle, the vampire probably chooses the part where the skin is thinnest and where the beast has the least chance of disturbing it during its feast, and in human beings the great toe bleeds more freely than any other part of the body, and is also usually more easily got at than any other part, except the head or face. But I have known several instances of men lying naked at night who were bitten about the loins. The amount of blood gorged by the vampire cannot be very great, but the wound bleeds freely after the animal has finished sucking, and sometimes gives considerable trouble to the victim. In an account written by an English officer many years ago, he says he was bitten in the toe by a vampire, but did not discover the circumstance until the following morning, when he found the sheets saturated with blood, and cal-

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culates that he lost at least fourteen ounces; yet the puncture of the bite was very small. In those cases which I have examined the wound was a small triangular puncture of no depth, but there had always been considerable bleeding, apart from the blood swallowed by the vampire. I have seen the flanks of horses quite stained after being bitten. In every case coming under my notice horses and cattle were bitten just behind the shoulder (on the withers), and I do not think that two bats ever settle on the same victim; but they will worry cattle night after night until they are thoroughly worn out. They suck wild animals too, and marks of old wounds on deer, agouti, &c., which are believed to be the results of past fights among themselves are often the cicatrices of old vampire bites. I am clearly of that opinion after carefully examining them in a great number of cases; but at the same time I must admit that I have never actually seen the vampire attack a wild animal. I do not think they ever prey on small animals or birds, or if they do, they do not deplete them of a sufficient quantity of blood to cause death. With regard to deer, I am sure in my mind that they bite them habitually. I could not be mistaken in the marks after my experience.

Although vampires were met with on nearly all parts of the Purus, and sometimes in great numbers, neither I nor my followers were ever bitten. One would sometimes hover over the boat; and on one occasion a vampire rested for some minutes on the mast, and then resumed its flight. What could be the object of these flights about the river, considering that the creatures do not hawk, it is difficult to conjecture. It seemed to be principally for the purpose of play. Their flight was much scattered, two or three at a time being the greatest number seen, except very occasionally. Two would often flutter together for a moment evidently in play, and it was only at such times that I heard them utter their cry, which was a sort of bell-like "tink! tink!" I never could

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discover that any animal or bird preys upon bats, though I once had some reason to think that bats may prey on each other. Vampires on the Purus much frequent the tops of a species of palm of great height. In the stomachs of those which I dissected there was a dark, thick mucus, which I supposed to be partially digested blood. In one case the blood was so fresh that there was no doubt but that the vampire had recently sucked some animal, large or small.

The palm-trees alluded to above were objects worthy of notice, if only on account of their great height. The huge, wide-spreading leaves did not begin to spring from the trunks under a less height than eighty or ninety feet, the entire height of the tree being probably fully a hundred and fifty feet. It is not by any means the only species of palm found on this great river and its tributaries, but it is far and away the finest. It is much frequented by several small animals and birds, and it is no uncommon incident to see the top of one of these palms covered with a flock of macaws.

We spent nearly three days in exploring the lake I have mentioned. It was about nine miles long by five broad in the widest part, but it narrowed to less than a mile in the north-west corner; and there was evidence that its size varied at different seasons of the year, being doubtless dependent for its extent on the overflowing of the river and two tributary streams. There were five islands in it, beside a number of shoals with a tree or two on them, giving one part of the lake the appearance of flooded country. It was full of fish, and crowded with water-fowl, and its banks were frequented by countless deer and jaguars, the latter haunting the islands in the lake. So numerous were they that they had worn paths on the ground of what seemed to be their favourite landing-places. On one morning that we spent here we saw eleven land from one island alone in the course of an hour. This was in the early morning, and their object

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in leaving their lairs seemed to be to feast on prey killed the previous evening. Before ten o'clock several of them were seen to swim back to the island, doubtless to spend the greater part of the day in sleep, though the jaguar is not here so nocturnal an animal as it is in some other parts of the country; and it is my belief that many animals generally described as nocturnal are so simply because they find it much the safest to move about at night in parts of the country much infested (from their point of view) by that universal enemy of the animal world—man. Whether I surmise correctly or not there were a few jaguars on the move in this district at all hours of the day; while, as soon as it was dark, they swarmed to a dangerous extent, moving about fearlessly in all directions, for, notwithstanding what I have just written, I am compelled to admit that all cats are, to some extent, nocturnal in their habits, the reason being, probably, that they then have a better chance of surprising their prey in the dark.

The wild animals could not have been much disturbed in this district, even by the Indians, they were so tame—the jaguars most unpleasantly so. One slunk by me like a great dog, within twenty yards, apparently quite oblivious of the danger he ran. He was probably gorged, for he moved slowly down to the lake, and swam off to one of the islands to sleep off the effects of his meal, as I suppose. Both jaguars and pumas, and, I think, all other cats, eat to such excess that they become heavy and apathetic until they have had a prolonged sleep. This was not the only occasion on which a jaguar or puma passed unpleasantly close to one or other of us; but in no case did they seem disposed to make an attack. I do not know if the jaguar ever voluntarily attacks human beings, but they bear the character of so doing in all South America. No case of either it or the puma doing so ever came directly under my notice; but I believe there are reliable accounts of both animals

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having done so on rare occasions. I know, however, that both animals when driven to bay, or robbed of their young, often prove exceedingly fierce and dangerous foes. My experiences of these animals do not agree in all points with those of some other travellers whose works I have read; but as I said just now, what one man sees another may easily miss. It is quite exceptional for all dangerous animals to go out of their way to attack man, and they very rarely do so unless to resent an injury or escape an impending danger. These remarks apply to the American continent only. I am not a qualified judge of what such animals as lions and tigers may do in the countries inhabited by them. I am convinced, however, that all dangerous animals are much impressed when suddenly meeting man, by the latter boldly standing his ground, and that to fly before them is often to invite attack.

The jaguar is found over a very great part of South America; the puma over the entire continent. I have not the least doubt of the latter fact. It is exterminated in many of the United States, and is no longer found in a great part of the British possessions; but I have found the remains of pumas in superficial deposits within a few miles of the shores of Hudson's Bay, and it is referred to under the name of the "lion" in the works of several old writers on the northern parts of the continent; while in most parts, from the Canadian frontier to Tierra del Fuego, it is still a living animal—a simply enormous range not paralleled, I believe, by that of any other terrestrial wild mammal.

The average length of the jaguar, measuring from the nose to the root of the tail, is four feet; that of the puma three feet. Fine specimens of these animals exceed these measurements by a foot in each case. The length of the tail varies so much that its proportions are certainly not dependent on the other measurements of the animal. It is usually about one-third the entire length of the

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animal, often shorter, rarely longer. So an animal five feet long in body will have from two feet to two feet four inches of tail. A jaguar four feet long has considerably more than a third greater bulk and weight than a puma three feet long; yet it is asserted both by naturalists and South Americans that the latter animals attack and conquer and tyrannise over the jaguar. My experience is quite the reverse of this. The puma has no chance with the jaguar, and I have actually seen one of the latter animals so maul a puma that was but little inferior to it in size that I should think its recovery from its wounds was almost hopeless. The two animals frequently fight most fiercely when they meet. There are very few jaguars in the northern half of the continent, though a few still linger in the southern states. The jaguar never seems to have had half the extent of range of the puma. Both animals are cunning and treacherous, and those kept in captivity are never to be trusted; nor are there any material differences between the habits of jaguars and pumas, with the exception of these two instances: the puma is not so fond of water as the jaguar, and is not so arboreal in its general habits. Both animals prey on the same creatures; but while the jaguar is strong enough to kill full-grown horses and cattle and the tapir, the puma as a rule can only overcome the young of these animals; and the dams of both colts and calves occasionally give the puma more than he bargained for. A horse is quite capable, with a well-delivered kick, of sending a puma rolling helpless in the dust.

Both jaguars and pumas kill large game, generally, by breaking the neck; but I do not think that this is done in the manner which is generally thought. I have watched them very carefully, and my opinion is that the neck is broken by a quick blow of the paw. All cats strike freely with their paws, but they cannot do so without unsheathing their claws, which become embedded in the flesh. It is the motion of disengaging the

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claws which has misled observers and induced them to think that the jaguar or puma was endeavouring to break the victim's neck by drawing back the head. Neither jaguars nor pumas ever break the bones of their prey by biting or gnawing. Where bones are so found they have been visited by some other animal, probably foxes or coyotes. The big cats lick the bones marvellously clean with their rough tongues, but never break them to get at the marrow as do bears, wolves, gluttons, &c. Both jaguars and pumas sometimes kill their larger victims by simply tearing out the throat without breaking the bones of the neck, and the prey of both animals consists largely of very small fry—rodents, down even to rats and mice, and such birds as quails, tinamus, &c. It is a mistake to suppose that these cats, together with many other smaller creatures of prey to be hereafter noticed, have the power to keep themselves abundantly supplied with prey. They often have to go without food for lengthened periods, for not only are their victims as wily as they are, but often escape the jaguar's attack. It is quite as much as the latter can do to pull down a full-grown tapir, while with the horse or cow he often finds he has caught a tartar. Jaguars sometimes surprise monkeys by leaping upon them from above; but they cannot catch monkeys except by surprise, though they climb trees with surprising agility, running up even the branchless trunks quite as easily as the domestic cat runs up a clothes-post. The puma is not so expert a climber, and although it is found in the densest forests as well as on the open pampas, I am convinced that its natural habitat is in broken rocky ground. It is found in all the great mountain ranges of America, even to the tops of nearly the highest point, the Rockies and the Andes alike abounding with pumas; but I have never found jaguars in mountainous districts. The latter is a water-cat with arboreal habits, although, like the puma, it seems to have extraordinary powers of adaptability to

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both climate and surroundings, but not to the same extent.

The stories of the non-resistance of the puma to the attack of the hunter, and of its waiting passively, with tears streaming from its eyes, for the death-blow, though commonly repeated in certain parts of South America and by some European travellers, are pure nonsense. I took great pains to ascertain if there was any truth in these reports, with the result that I am sure there is not. Both pumas and jaguars are cowardly animals, and always strive to escape from danger; but they will often fight fiercely when escape is impossible, and the traveller who treats them otherwise than as highly dangerous animals may have great cause to rue his temerity. Those who have read my work on North America will doubtless remember the account I have there given of the trouble of some American hunters with a puma, and I can assure them the animal is equally fierce in the southern division of the continent.

An impression prevails that the coats of the jaguar and the puma are apt to vary in colour in different localities. I could never find that this was the case. When these animals are shedding their coats, the hair has a faded and dull look; but when the new hair has grown it is as bright as ever, and the same throughout the entire habitat of the animal. An American hunter whom I knew professed to distinguish a difference between North and South specimens, but when put to the test he utterly failed to show the difference. Required to pick out the skin of a puma killed in Patagonia he selected one shot in New York State (where the animal is now probably extinct), and asked to point out a North American example he chose a skin from La Plata. The only variation I ever discovered in a puma's coloration was that there are sometimes certain faint-coloured markings like erased spots to be seen on their skins, and the cubs are usually, though not invariably, spotted, and more marked with

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dark colour than their parents. On the other hand, I have seen jaguar cubs that were almost without markings during the first few weeks of their lives, the markings gradually appearing as they grew. These are singular circumstances which are very difficult of explanation. If pumas were originally spotted animals, why should they lose their spots more than jaguars? The habits of the two animals are to a large extent the same, and neither of them required "protective colouring" in America where they have no enemy but man, against whom coloration is no protection whatever. Indeed I am but half a convert to the doctrine of protective coloration. There are so many exceptions that I consider no rule can be established. The bright green of the common American parrot seems admirably adapted, in theory, for its protection, but how about the vivid scarlet of the macaw, and the glaring white of the bell bird? If the coloration and "mimicry" of some creatures seems protective, it is easy to find others equally, or more, in need of protection, whose coloration and habits are a direct incentive to attack. All my experience tends to show that coloration is at best but a partial protection. It is none whatever to the human eye, and most naturalists incline to the opinion that animals are quicker-sighted than men. An inexperienced person may be deceived—the practised hunter never, unless as the result of his carelessness.

A certain number of the jaguars here were shot for the sake of their skins, and the largest animal of the kind I ever met with was procured at the lake. It was a female, with her coat in magnificent condition. A very lanky, gaunt old male was paying his addresses to her, which she received very spitefully. I was so interested that I watched them for some time. Several times the female clawed her admirer so severely that the fur flew from him in a small cloud. He took his punishment very chivalrously, retreating humbly, and waiting some

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minutes before making another advance, the female growling savagely as he approached. When I shot her the male gave one startled glance in my direction, and then rushed up a tree to the height of sixty feet, where he crouched, watching me, and evidently thinking he had attained to a place of safety. As his skin was a poor one, and bore visible marks of the clawing he had received from his lady-love, he was not molested. In every case the best skins were obtained from females.

The cries and calls of all cats appear to me to be very much alike. They differ only in intensity of sound. For days together we did not hear either jaguars or pumas in the forests; then the whole night through they would be heard calling to each other. The noise they sometimes make is terrific—or appears to be so in these great solitudes, where there is generally the silence of death. At the pairing time both jaguars and pumas, and all other American cats, squall most abominably. Jaguars and pumas in some parts of the country certainly, and I think in all, have no fixed time for breeding. I could not ascertain with exactness how long they go with young, but the females do not, as a rule, breed in two consecutive years; and I do not think that either animal generally pairs for life, though sometimes pairs are met with. They are not gregarious, but sometimes, as at this spot, a very large number of animals congregate within a small area. We met with twenty jaguars here to one puma, and I am sure that we might have killed over a hundred in a few days. We saw cubs of all sizes, and two very young ones I took, intending to try and rear them. No sooner, however, had George taken them on board than one of the dogs killed them both. A larger one that was secured was such a vicious little wretch, and made so much noise, disturbing our rest at night, that I was glad to turn it loose again. The dogs evinced the utmost dislike to all these cats.

In addition to pumas and jaguars we found three

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small cats in these forests, all rather scarce, or at least not often showing themselves. The first was of a greyish colour with a reddish tinge, mottled with patches of black too large to be described as spots, and some of which formed rings enclosing a lighter coloured space. The tail, which was somewhat bushy, was ornamented with double rings of black or dark grey. Another species was of a very light grey colour with streaks of black. Both these cats were larger than the English domestic cat, but were exceeded in size by the third animal, a specimen of which measured two feet four inches from the nose to root of tail, the latter being nearly as long again. This also was brownish grey in colour but entirely without spots or markings, and the body was of such a peculiar elongated form that at first glance I did not recognise it as a cat. It was a desperately fierce animal, and being only wounded was secured with difficulty. All these cats prey largely upon birds which they surprise in the trees, but the last named was seen to kill a great ant-eater, a most powerful and formidable animal, which I would not have believed the cat to have been capable of overcoming if I had not witnessed the incident. This long-bodied cat was seen more often on the ground than in trees, but the two first-named species seemed to be entirely arboreal. Probably all three occasionally prey on the smaller monkeys and marmosets; but I am strongly of opinion that the spider-monkeys and howlers have but few enemies that are quick enough to surprise them. I should mention that the great ant-bear was found to have been killed by having his neck broken. It was the first ant-bear seen, but both it and the little ant-bear were afterwards occasionally found in these forests. These three cats are, *Felis tigrina*, *Felis colocollo*, and *Felis jaguarondi*, according to a naturalist who afterwards examined the skins at Pernambuco.

I actually saw the ant-eater killed. It was not more than twenty paces from me. The *jaguarondi* must

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have been lurking in the thick herbage; but I did not see it until the moment it rushed on the ant-eater. The killing was instantaneous; and I shot the *jaguarondi*, with small shot, while it was actually on the neck of its victim. I now regret that I acted so precipitantly, for on a subsequent occasion I found an ant-eater dead with a dislocated neck, and the throat torn out at the side, and the body had been drained of blood. On both animals the neck was dislocated in the same place, close to the base of the skull. It looks, therefore, as if the object of the *jaguarondi* was to suck the blood and not prey on the flesh. It was not killed by the shot, and I tried to secure it alive, but its strength and fierceness were extraordinary, even for a cat, under such circumstances.

Small deer came at night in great numbers to drink at the lake where the jaguars lay in wait for them, as also did we; but the quality of the venison was not good, being dry and without fat, and the deer being so small that using only the best parts of the meat for ourselves and giving the rest to the dogs, one deer only supplied the wants of a single day. I tried salting the venison that we might have a supply to fall back upon, but the experiment was a failure, nor did an attempt to dry thin slices of the meat in the sun succeed any better. Although there were great numbers of these deer in the forests they never congregated in great herds, but roamed about singly or in families of three or four, in the latter case being does with fawns. When they came down to the water to drink, however, the banks were often covered with them. They swam gracefully and well, both in the river and in the lake. On one occasion we saw two jaguars attempt to intercept some of them that were swimming towards the bank of the lake. The deer saw them and changed their direction, and though the jaguars galloped round the lake the deer were too quick for them and escaped. The jaguars seemed to be aware that they would have no

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chance of overtaking the deer in the water, the latter swimming with much greater speed than the cats. Several times caymans were seen to pull deer under the water, but no encounters between caymans and jaguars were witnessed. I have read that jaguars have been known to kill and eat caymans. I think this must be a mistake, as I do not believe the jaguars could kill caymans, except, perhaps, very small ones. The jaguars, however, often caught fish in our view. They took post on trees or roots lying half submerged, and beat the fish out of the water with their paws. It was always big fish they thus captured, and they never missed when they thus struck. We also saw them capture large water-fowl among the marginal herbage.

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CHAPTER IV

CONCLUSION OF THE VOYAGE ON THE PURUS

DURING the time we remained in the neighbourhood of this lake we several times saw parties of the Indians in the distance, and on one occasion some of the men were induced to come up to us. They accepted some venison from our hands, and a few other presents, but we did not get on such good terms with them as with our former friends. They were quite naked, unless a few ornaments of the head, neck, and arms can be termed clothing. They carried stone tomahawks, and two of them were armed with pikes tipped with stone. They had also a kind of club made of some kind of asphaltum, a lump of which was fastened to the end of a stick. It was very hard and seemed to well answer the purpose for which it was intended, for we saw them knock down some birds and small animals by throwing it. One man carried a kind of basket made of open network, the material being a reed or rush, in which he bore a number of parrots, intended, no doubt, for food, for they had been recently killed, and blood was oozing from them. This the savage frequently wiped up with his finger, and licked with evident keen enjoyment. They had some women and children with them, whom they made to stand at a distance, and would not permit to approach us. These were almost as destitute of clothing as the men; but it could be seen that the women wore small aprons, only a few inches square. Some of these aprons we subsequently saw beautifully embroidered with various coloured fibres, and the teeth of fish and small animals.

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Continuing our voyage up the Purus we had, I calculated, ascended six hundred miles above its mouth, or junction with the Amazon, by the 1st November, and found it still nearly a mile wide, with a depth of thirty feet, and sometimes much more. The general features of the river had not changed; it was still full of small islands, but the country was undoubtedly somewhat higher, though there was no elevation that could be called a hill visible. On the left bank we passed several small savannahs, with only scattered trees on them; though the land was generally covered with dense and impenetrable forests. Large stretches of the country were not at all flooded; but the number of rivulets and brooks that joined the main stream on both sides was very great. In fact I have never seen such an extent of well-watered forest in any other part of the continent. Almost for the first time we perceived a very perceptible current in the river; and one night, when we accidentally broke from our moorings, we drifted a considerable distance down stream, thus proving that there must be a very much stronger current here than in the lower reaches of the river. The water was generally so clear that we could see the bottom at a depth of nearly twenty feet, and watch the shoals of fish disporting. The bottom was always a sandy mud, but was generally covered with a forest of gigantic weeds, which sometimes reached the surface and covered it. After rain the river became very thick and muddy, but would clear itself in a couple of days. Where the weeds and rushes formed a matted bed on the surface of the water, many reptiles lurked, amongst them a moccasin snake, which, although differing somewhat from the moccasin of the States, is, I believe, only a variety of it. There are also many large water-lizards which are an excellent article of food. Prejudices are difficult to overcome, but I have never met with anybody who, being once tempted to try these lizards, did not become exceedingly fond of their flesh, and prefer it to the tenderest

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chicken; in fact, there is quite a trade in them in some South American towns, and also in parts of the States and West Indies.

At the beginning of November we were abreast of a large river joining the Purus on the left or west bank, and as I was desirous of penetrating the country in that direction we entered it and moored about twenty miles above the junction of the two streams. This river, which is nearly half a mile wide, seems to be indicated on my map, but is not named, and has a much stronger current than the main stream. The average depth was about twenty feet, but there were some very deep holes in its bed. The banks in some places were eight or ten feet high, and I had great hopes that this river would lead us into a more elevated district of the country. The men objected a little to the increased labour of poling the boat here where the current was so much stronger, but by means of the sail we got another thirty miles up stream, when the wind again turned dead against us, so I determined to make another solitary canoe journey.

For a time the river ran through forest as dense as any in the Amazon Valley; but after ascending some hundred miles I came to an extensive savannah having much the appearance of a well-wooded park, with here and there a stretch of dense forest in the valleys. This was followed by a hilly tract with elevations, at a rough guess, of five or six hundred feet, so that the country appeared to be quite mountainous to one who had been for weeks passing through one of the flattest plains of the earth. Without exaggeration the country swarmed with game. There were thousands of small deer, appearing to be hornless, and not assembled in close herds, but scattered over the plains singly, or in what were evidently small family parties. Jaguars and pumas were very abundant, and the two small spotted cats mentioned in the last chapter were both seen. Of tapirs I saw at least a hundred in the river or on the banks during the

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journey; and birds and small animals were so abundant that I cannot even mention the species, and like Alexander Selkirk's creatures they were shockingly tame; and I wondered what awful scenes of blood will take place in this lovely secluded region when it is laid open to the modern rifle Nimrods and their "batteries." I could almost pray that the Brazilian Government will pass some strong protective game-laws before that horror comes to pass.

On this occasion I was absent from the boat four days and three nights. It was my custom, on such short journeys as this, to travel as lightly provisioned as possible. I never omitted, however, to carry a small portable kettle for tea or cocoa, which I have always found a most supporting beverage at times of unusual physical exertion. It seems scarcely necessary to say that a fire of sticks to boil the kettle and cook a bird or small animal could always be made in a few minutes in such a well-wooded country as this; and besides a few biscuits and some salt, I carried no eatables with me, depending on the small game which I shot. Such is habit, that to this day I can make an enjoyable meal of flesh alone, and for long after my return to civilised surroundings, the style of living and want of a continuous change of animal food caused me considerable discomfort. But I soon discovered that the same quantity of meat cannot be consumed in a quiet city life which I found consistent with health and strength in the wilds.

My favourite sleeping place was on the ground, when I thought I could lie there with safety. Otherwise I climbed into a small tree, or suspended a net-hammock between two trees. The last I only used when the ground was wet, as I could never sleep comfortably in this way. If I may use the trite saying, "Use is everything." As a young man I scarcely knew what fatigue was, and a very little sleep (one to two hours in the twenty-four) would suffice for me, day after day, for a

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lengthened period, though I used to make up for this deprivation by a prolonged slumber when the opportunity offered.

On the three nights referred to I slept twice on the ground, rolled in a blanket, going inland a mile or more from the river for fear of the caymans, the only creatures here that I dreaded. As to the jaguars and pumas, I am too well acquainted with the habits of these animals to think there is the slightest chance of their attacking sleeping men. I saw them wandering about like great dogs, and several times they passed quite close. When sleeping in or under a tree I chose a small one that I might be sure there were no lurking serpents in it; and if the moon were shining I took precautions to avoid its beams, which are highly dangerous to a sleeper.

I have said that animals and birds were excessively tame. There were exceptions, however. The tapir, for instance, was here as timid as I have always found it to be in all parts of the country where it is found. Its haunts are always in close proximity to water, and in nineteen cases out of twenty when seen it is actually in the water. It should be called the water-cow of South America. It not only swims with facility, but has the power of running along the bottoms of the rivers under water. They never assemble in droves; and a pair, or the cow and her calf, is the greatest number usually seen together. On rare occasions small parties, at most five or six in number, were seen by me in this region. The cows very seldom had more than a single young one with them; and they always seemed exceedingly jealous of letting the calf away from their sides. Probably the jaguars and pumas are very destructive to the calves. The former cat kills the adult animals; and I found the remains of one that had been destroyed by jaguars. The cow never has the male with her when she has a young calf, and they do not seem to pair for life. Tapir-beef is the best meat to be obtained in South America, and is

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far superior to that of the ox. The animal, therefore, on grounds of policy alone ought to be strictly protected. Wherever it has been got at by civilised man its numbers have been so reduced that it is already a scarce animal. It is one of the most defenceless, as well as harmless, of all big animals, and never escapes from any of its enemies otherwise than by its speed or excessive caution. They never move away from the immediate neighbourhood of cover, and love to lie among tall rushes close to the dense forest. They wallow for hours in the mud; and are often seen completely enveloped in a dry coat of it. The object is probably to afford them a defence from the attacks of irritating insects. Caymans swarmed in this river, as well as others where tapirs were found, but they never seemed to make attacks on the tapirs or any other big animal. My opinion is that fish and water-fowl form the bulk of the cayman's food, though I know that they seize monkeys and small deer, and other small animals when they get the chance, as well as water-lizards. At the conclusion of this canoe journey a tapir was shot near the boat. It was about the size of a small cow, and of a smutty colour, neither black nor brown, with a short bristly mane or crest on the head and neck, and white edges to the small short ears. The tail was a mere stump, and the legs short and sturdy with large toes. The eyes were small and deep-set, and the snout prolonged and flexible, but not forming a trunk, as we often see it represented in pictures.. From a short distance the animal might easily be mistaken for a pig; its whole appearance is eminently porcine. The meat was exceedingly good, resembling beef. The skin was thick and tough, but it hardened and shrivelled so much in drying as to become worthless as a specimen, and the salted meat was not so eatable as salt beef.

Several of the birds found about here are of species common in the northern part of the continent, especially in the Southern States and Mexico. A hawk seen on all

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parts of the river was a beautiful black and white one, known in the States as the snake-kite, on account of its preying largely on those reptiles. I could not ascertain if it followed the same habit here, but I saw it seize frogs and lizards, and I think that it is beyond doubt that reptiles form the staple of its food. I have watched it closely, and never saw it stoop like most hawks; but it skims along the surface of the pools and rivers, and so seizes frogs at least. On the Purus it may often be seen sitting on a bare branch above the water, but at a considerable height above it. I saw one pitch at a turkey-buzzard which attempted to settle on the same branch, and knock it completely over in the air. The cowardly buzzard beat a hasty retreat, never attempting to resent the treatment it had received. I have also seen this kite show fight to hawks much bigger than itself; so it is a plucky bird. Its tail is long and forked like that of a swallow, and in the Southern States it may often be seen perched on the telegraph-posts.

Here also I procured a species of peregrine falcon, which in the Chilian and Peruvian Andes is an inhabitant of bare, inaccessible rocks, a strange illustration of how birds and other animals adapt themselves to localities, for here it dwells in dense forests. There were other hawks and falcons which I could not identify, and three species of eagles. The first was a large crested eagle, an exceedingly noble bird, of greater size and expanse of wing than the golden eagle, which was also, I think, seen on the upper Purus, but I am not sure about it. It is the same species as those which are found in the extreme south of the States, and I have also seen the same eagle in Mexico; but it here grows to a much larger size than in either of those two countries; and on that account may be considered by some as a distinct variety. It was not often seen, and was one of the birds which were too wary to come within gunshot, so I did not obtain a specimen. I saw one kill a stork high up

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in the air in an extraordinary manner, such as I never witnessed but on this one occasion. The eagle must have been at a tremendous height, since I am certain that the stork did not see it, as I did not myself until it suddenly dropped like a stone from an invisible height. The stork ducked, but the eagle struck it and killed it instantly, for it dropped just like a shot bird. The eagle permitted it to fall a good distance, but again dropped on it and secured it before it fell into the water.

The second species of eagle was the common harpy eagle, which is found more or less in all parts of Brazil that I have visited. The bird has a pretty spotted crest, and is remarkable for size and strength of its legs and talons, and not less so for the strange manner in which its disposition seems to vary in different localities. In some places it is a cowardly, skulking bird, and preys on carrion and the leavings of other creatures of rapacious habits, but on the Purus it is one of the boldest and most aggressive, as it is also one of the commonest of the birds of prey. It was found in all parts of the Purus, most abundantly on the upper reaches, and especially on the small tributaries. We saw the huge nest of this bird placed in a tall tree, where it was inaccessible, being quite two hundred feet above the ground. It appeared to have young at this time, for we saw the old birds carrying prey into the nest. The third eagle was a dark brown one, only seen three or four times. One that I shot fell into the water at the edge of the river, but being only wounded it fluttered out and into the thick jungle, where it was lost. The osprey, or fishing eagle, as it is more often called in the States, was also occasionally seen.

In case it may be of some use or interest to the naturalist I may just mention that among the smaller birds of prey a sparrow-hawk was recognised, and a small falcon seen in the countries bordering on the lower Amazon, and in Southern Brazil. There was also a

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hawk that seemed to me to be the common European hen-harrier; and we seldom failed to see the turkey-buzzard after flaying any large animal we chanced to kill, though this bird cannot be said to be abundant on the Purus. Another scarce vulture of this region was the carrion-crow of the States, but it was seen from time to time in small parties of four or five to a dozen. It is a small vulture about the size of a raven, with a black plumage. Often when we had flayed a deer or a tapir a small flock of these birds would appear and feast on the offal, and these were nearly the only occasions on which we saw them. It is singular that this bird and the turkey-buzzard never both came up on the same occasion, but the latter would sometimes appear when a deer was killed though we had not seen any for a week previously.

At the risk of being wearisome I must yet notice the macaws before quitting this spot. They are abundant everywhere on the Purus; but about this district their number often appeared to be immense. As a rule they go, like the monkeys, in small flocks of sixty to one or two hundred; but here the flocks, especially of the scarlet species, often numbered thousands, and a grander sight than a large flock of these crimson beauties, hovering over the trees and settling on them till they looked like masses of fire-coloured blossom, it would be hard to find in these regions. They were very fond of settling on the gigantic palm-trees before mentioned. When circling round in the air, which they have a habit of doing, like pigeons, they keep up an intolerable screaming, which we could hear sometimes when I believe, the birds were several miles distant. There were several other species of macaw. The commonest was one with a green plumage shaded with blue, and some brown on the tail. It was rendered conspicuous by a vivid scarlet frontlet on the forehead, and was a very much smaller bird than the scarlet macaw. Another species was ultramarine blue on the back and breast, with black wings and tail, and a

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noticeable bright yellow ring round the eye. This bird was only seen in small flocks.

Of other parrots there were many species, nearly all unknown to me, and all with green plumage, more or less variegated with orange, yellow, or red. Among the few I recognised as having seen elsewhere was the well-known sun-parrot, common in Guiana and other parts of South America. But the most curious was a little parrot, smaller in size than a house-sparrow. Till I found it I had no idea that any parrot was so small. It is thick-set in shape, with a very short tail; and the body is green with a blue base. It is more frequently seen in pairs than flocks, which are never large; and in its habits resembles the love-birds. They are almost incessantly caressing each other. Other parrots varied in size from that of a jay to that of a rook, and I failed to discover any difference in their general habits. They were all breeding on the upper Purus during October, when both eggs and young birds were found. The eggs were usually laid on a soft deposit of decayed wood dust, and there was never any vestige of regularly constructed nest. The eggs, pure white in colour, without markings, greatly resemble those of owls. Both parrots and macaws, without exception, breed in hollow trees at a considerable height above the ground, and the eggs were only reached with great difficulty and risk. Of the young birds which I tried to rear nearly all died before we left the river. It was not always easy to rob the nests. Sometimes the old bird remained in the hole and offered so stout a resistance that the men were unable to insert their hands. The beak of a parrot is as strong as that of a bird of prey; and, by-the-bye, I do not remember ever to have seen a hawk attack a parrot, though monkeys capture a few. All the parrots were noisy at times, but there were periods extending to days in which all the birds and animals were remarkable for silence. At such times

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the quietude of these regions was oppressive, and inducive of melancholia, so that I had some difficulty in keeping up the spirits of my two companions. In flight and several of their habits the parrots reminded me much of pigeons. There were several species of pigeons on the Purus, and, as in this region we found the smallest parrot I had ever seen, so also here I found the smallest of owls. Its size was only about that of a sparrow, and very little was learned concerning its habits. There was also a large horned owl, and several other birds of this order plentiful everywhere.

Among other curious birds inhabiting the upper reaches of the Purus was the spoon-bill, seen pretty frequently, solitary, or in pairs. I could discover nothing concerning the breeding habits of this bird. When disturbed it often rose to a great height and flew inland over the tops of the tall trees.

A still more curious member of the heron family was the boat-bill, a bird whose bill much resembles in shape an inverted boat, hence its name. Viewed from the front, with its head and neck buried in its shoulders, after the manner of the heron, it looks much like a vulture; while seen sideways, with its pigtail-like crest hanging down the back, it reminded me much about the head of our old jack-tars. It has very short legs for a wader, and the tail also is short. They are strong fliers, and soar to an immense height, and are fond of perching on the tops of tall trees. When on the ground they strut about with a dignified air, frequently groping in the mud with their enormous broad bills. I have never seen them actually in the water, at all events farther in than just to cover the feet. They feed on frogs, small water-lizards, and apparently any small creature that they find lurking in the mud. One which I examined had several very small water-tortoises in its stomach, and the broken elytra of water-beetles. Their nests were seen in the

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tops of tall trees, where they could not be reached by my men. They appeared to generally build in company, five or six nests being placed close together, but the birds themselves are of rather solitary habits, wandering about the river singly or in pairs. In the early morning, and sometimes at evening time, I have seen as many as a dozen perched in the trees where their nests were placed. They are remarkably silent birds, so much so that I have thought they must be voiceless. I never heard them give utterance to any sort of call or cry whatever. They are plainly coloured birds, grey, with a few black markings, and dirty white about the neck, throat, and breast.

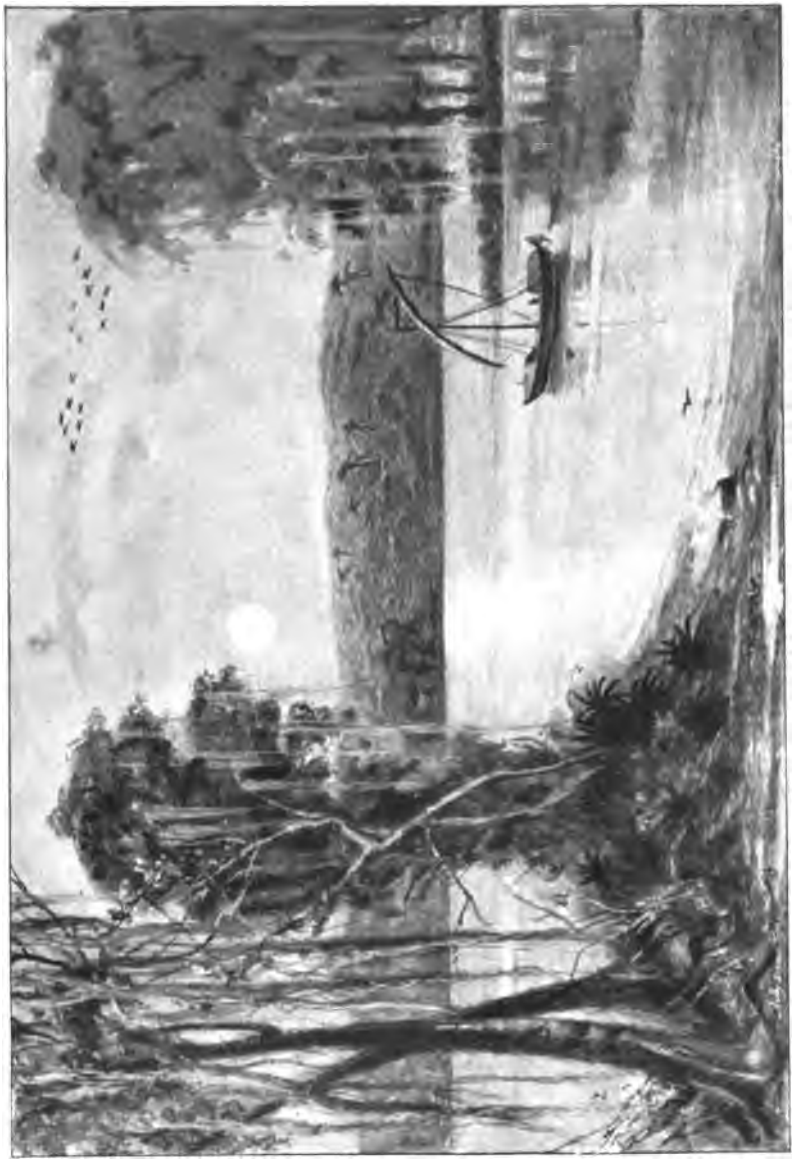
Since our first meeting with the Indians, we have frequently seen odd men and small parties watching us from the banks of the river, but have never succeeded in inducing these people to communicate with us, except in the single instance recorded near the lake. They always appeared to be perfectly naked, and armed in the manner already described. At night we occasionally saw the reflection of their fires. Their condition seemed to me to be very wretched; and though their features showed them to belong to the same race as the semi-civilised Indians I had seen in the inhabited parts of Brazil and in Guiana, these men were much inferior in size to their better provided for brethren.

On the 18th November the current in the river was very perceptible, and on the 24th we came to a barrier, which I suppose to be the spot marked on the maps as the Barrier of Caiauarite. It is occasioned by some rocks in the bed of the river, and though the obstruction did not seem to me to be of a very formidable nature, it was impossible to take the boat beyond this point. Here, then, we were brought to a standstill. I had some intention of carrying the canoe above the rapids and going on another solitary journey; but at the earnest entreaties of my companions, who dreaded being left alone, I abandoned the project.

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LAST ANCHORING PLACE ON THE UPPER PURUS.

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According to such maps as I possessed, and assuming that I was right in my conjecture as to the spot we had reached, we had come some six hundred miles up the river; but allowing for all the turns and twists of this great stream, I am of opinion that we had travelled at least a thousand, and were now deep in the heart of the great central Brazilian forest, or El Matto Grosso, as the inhabitants call it. It must be understood, however, that all distances given in this journey are pure guess-work: for I had no means at any time of ascertaining my exact position, and the work throughout partook more of the rough survey of a scout rather than that of a scientific traveller, a character to which I make no pretence.

As we could proceed no farther, I dropped down the stream to a point where I had noticed that a big tributary joined the main channel, and made preparations for exploring it. At its entrance or mouth it was three hundred yards wide, but after ascending it for a dozen miles we found the width had decreased to a hundred and fifty, yet it seemed to run a long distance into the heart of the country, with dense forest on both banks, the tall trees meeting overhead when we had gone another dozen miles, and the stream had fallen to fifty yards in width. There was still a good depth of water, however, some twelve to sixteen feet, "quite enough to float a boat or drown a duck," as Jose said. The banks on either hand showed ten or twelve feet of rich vegetable mould, through which the river had cut its way; and these banks had a tendency to break away, leaving great recesses, in which the water widened into pools. We had never less than a width of fifty or sixty feet, till sixty miles above its mouth this river entered a great lake, which was its source. This lake was so wide that we could not see its opposite shore; but there were several islands in it, as in all the others which we saw; for nearly all the tributaries took their rise in lakes of

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different sizes, situated at from two or three to a hundred miles from the course of the main stream.

At the point where the river issued from the lake there was twelve feet of water, so we took the boat in and anchored near the shore at a spot which was convenient for landing, took all the stores and provisions out of her, and ran her on a sand-bank in order to cleanse her bottom, which was covered with a green slimy growth which hung in the water nearly two feet long, and greatly retarded her progress. While the men were scraping her, and effecting a few repairs, I paddled across the lake in the canoe. Judging by the time the journey took, I calculate the distance to be about thirty miles. Near the middle I found ninety feet of water, so there can be no doubt but that this is a permanent lake. It was full of fish of similar kinds to those found in the river; and I may here state that though I had been on the constant lookout for the gymnotus, or electric eel, nothing was seen of that remarkable creature, so it is probably not found in these waters.

At the point where I struck the opposite shore of the lake it was thickly wooded with the largest trees we saw anywhere in this country. They were of grand dimensions both in height and spread of boughs. The diameters of some of the trunks was as much as eight feet, which is the greatest diameter of tall forest trees I have observed in any part of South America. Many of the trees bore a round fruit of the size of an apple, but of a different colour, which I found on trial to be hard and uneatable, though I saw the monkeys feeding on it. The latter were fearless to an extraordinary degree, coming down to the lower boughs of the trees to watch my motions. They made no noise, nor showed any signs of displeasure at my intrusion. The birds were so tame that any number might have been knocked down with sticks or stones. The only other mammal that I saw was a large rat, like a musquash. The birds included many macaws, but

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none of the scarlet species, while the lake was simply swarming with water-fowl, amongst which were several species of ducks, the boat-bill, the spoon-bill, the jabiru stork, and rails and water-hens innumerable, few of which I could specifically recognise.

I skirted round the lake for a considerable distance, and saw many fine bays and inlets which seemed to be the mouths of streams running from the interior, but everywhere the forest came right down to the water's edge, and prevented a view of the country. There was not even a strip of beach where one could land on this, the west side of the lake, though this was a noticeable feature on the east side, where I had left the boat. On account of the difficulty and danger of running the canoe close inshore, where the tree-roots and snags were thickly submerged, I did not attempt to land anywhere. When in the middle of the lake, I could but just dimly discern the tree-tops at certain spots, though I feel sure these, on the west shore, were nearly three hundred feet high. I could, however, see the column of black smoke arising from the fire of my men. Southwards the lake had the appearance of a sea, no land whatever being discernible in that direction, and the waves rolling up with the heavy regularity of tidal waters, insomuch that I feared they would swamp the canoe. I sounded with a small hand-line many times, and never got less than seventy feet at greater distances than a mile from the shore. Inshore the water shoaled very evenly, and at a hundred yards from its edge there was still a depth of twenty feet. The islands within the lake were all thickly wooded, and there was deep water near them, which was quite the contrary to islands examined in other lakes. None of these islands exceeded a quarter of a mile across, and none of them rose more than a hundred feet above the surface of the lake. On the east side, where the boat was, there were a number of sand-banks, which had been much burrowed

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into by some animal, which was not seen during our visit.

When I returned to the spot where the *Firefly* was beached, I found my men in a state of great excitement. They had killed an anaconda, which they declared exceeded twenty feet in length, but, unfortunately for the specimen, a large party of the Indians had come up and hacked it to pieces with their stone tomahawks and knives made of flakes of flint. They immediately set to work to make fires, in the way so common to savages, by the friction of two pieces of half-rotten and dried wood, and roasted large junks of the snake's flesh, which they devoured with as much greed and slobbering noise as a party of hogs. Most of them were already gorged and lying asleep round their fires, though the day was quite hot. They had made more than twenty fires, some of them having helped themselves freely with brands from the blaze our men kept up to boil their pitch-pots. Seeing me examine the pieces of wood with which they produce fire, one of the savages obligingly showed me how it was done, but he had some trouble in making the sparks catch. When I, in return, showed him how I could procure a flame by simply rubbing a match, his astonishment was very great, and he held out his hand for the box. I gave it to him, and he soon had a crowd round him, watching him strike match after match, until he had expended them all.

There were in all sixty-three of these Indians squatting around us, of whom twenty-four were women and nine only children. This last number appeared to be an ominous circumstance, indicating, I thought, either the destruction, or at least premature death, of many of the little ones. Only one of the children was an infant in arms, of which the mother was undoubtedly very fond. She often shook it gently from side to side, jabbering her uncouth gibberish to it with as much vivacity as a white mother. There was not half-a-dollar's worth of clothes

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on the whole party. Happy people! who seemed to suffer no inconvenience from going naked; had no sense of shame, and, above all, no tailor's bills to meet. The articles of dress, if they may be so called, consisted almost entirely of the small aprons of the women, which scarcely served their purpose, and one or two scanty cloaks of deerskin on the shoulders of men. The men wore their hair long, like the women; and all were very dirty, and, like the monkeys in the trees, spent a considerable portion of their time in hunting each other's parasitical tormentors, which were eaten when captured. They appeared to be devoid of any sense of decency, but were jealous of any notice bestowed on the women, whom they kept apart and evidently cruelly ill-used, for several were spotted with blood, and had terrible bruises about their faces and heads. All, with the exception of the children and one or two very young women, were revoltingly ugly; but the baby was a pretty little mite, and the poor mother's eyes beamed with pride and delight when I took it in my arms. Some of the men had a scanty quantity of hair on their faces, but in general they resembled the Indians of other parts of America in being smooth-faced. The dogs, which were fine, but very fierce animals, greatly attracted their notice, and I think they coveted them. As on a former occasion, one of the Indians played about these animals until he got severely bitten, which acted as a caution to the others. The dogs were a great protection to us and our property. The Indians possessed a few large, lanky curs of their own, and it will interest the naturalist to learn that these dogs were of a similar breed to those I have seen in North American Indian camps.

The head and some pieces of skin was all that remained of the anaconda, and even these the children were still chewing and munching. The Indians must have been in the neighbourhood when my men shot the serpent, and had been attracted by the report of the gun,

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for they came up a few minutes afterwards. They pounced upon the serpent immediately and began to cut it up, and the men found it impossible to protect it without resorting to violence, which I was very glad they had avoided doing. All—men, women, and children—ate gluttonously, and the serpent was sufficiently large to afford them a hearty meal, so it must have weighed some hundreds of pounds, and I am inclined to think that it had been larger than any specimen we afterwards met with. They all went to sleep early in the evening, lying on the ground under the trees, while we retired to the boat on the sand-bank, leaving the dogs loose amongst our property, which they would not permit the Indians to approach. We also kept strict watch in turns, but our friends gave us no trouble until the morning.

At daybreak they were all astir, and came crowding about us in a very inconvenient manner. Over night we had laid out a number of fish lines, and a dozen fine fish were caught. We gave the spare ones to the Indians, who received them eagerly; but they were few for so many hungry mouths, and led to some squabbling amongst them. They also troubled us by snatching several articles from the ground where we were breakfasting. I saw one man purloin an iron trivet on which we boiled the kettle and give it to his wife, who quickly wrapped it in a piece of deer hide and placed it in the wicker basket she carried at her back. I went quietly up to her and took it away. Not ten minutes later the same man purloined it the second time, and again I took it away. When he was not observing me I heated it in the fire till it was almost white hot and purposely left it in his way. When he thought I was not looking he made a quick snatch at it, but dropped it still more quickly, uttering a loud yell and clapping his fingers into his large mouth. All who witnessed this little incident laughed loudly, and presently the man himself joined in the general merriment;

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but afterwards I saw the rascal give his wife a spiteful blow on the ribs, I suppose for not having made off with the stolen property. We lost a few trifling articles; and some other things which I thought we might be able to spare I gave to those poor people, who hung about us all day. But what, at the time, we considered a great nuisance, turned out to be a really providential circumstance to us.

The day was a remarkably calm one. I do not remember to have ever noticed such a remarkable stillness in the air without a corresponding oppressiveness of heat; yet there were no signs of an approaching storm. The sky was almost cloudless, though the surface of the lake, unlike its appearance the previous day, was as rippleless as stagnant water. The leaves and grass were unstirred by the least breath of air; and the monkeys and birds were as active as usual, though it is one of the surest signs of an approaching storm when they hide away. The boat was moored to the shore, with everything taken out of her fortunately, and heeled over to enable the men to get at her keel. About ten o'clock in the forenoon I noticed a large stork flying in from the lake, when suddenly its feathers were ruffled and it turned completely over. Simultaneously there was a terrible rush of wind, which dashed me against a tree, and I saw a long line of snow-white billows rolling in slowly from the centre of the lake. They came on so steadily and majestically that I was quite unprepared for the terrible force with which they broke on the shore. The burst was simply awful. I and many of the Indians were swept inland many feet, and how any of us escaped death I cannot think. I was cut, bruised, dazed, and rendered almost insensible for a time. The first thing that I can clearly recollect was hearing the agonised screams of the poor Indians, several of whom were sucked back by the retiring waters. The wind blew with fearful violence, occasioning a thunder-

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ing roar among the trees, and tearing off great limbs and uprooting many of the smaller trees, some of which were whirled high in the air and fell into the lake. The turmoil of the elements and the panic among the poor people are indescribable, while the dogs crouched on the ground panic-struck.

Jose and George were wandering in the woods on the outbreak of this sudden wind-storm, but they soon came back with horror-stricken countenances. It was then that I first thought of the boat, and perceived, with a terrified heart, that she had disappeared. For the time being, however, nothing could be done, for none of us dared to move from the shelter of the tree-trunks. The moment we attempted to approach the margin of the lake we were lifted from our feet and dashed to the ground. For several hours we were in very great danger from falling limbs of trees and the trees also; but about three o'clock in the afternoon the wind moderated a little, though it continued blowing strongly for thirty hours. When at length we could venture to look for the boat she was discovered stove in and sunk in about five feet of water. I had taken the precaution to make her fast by means of a rope to a tree, and fortunately this had not parted or she must have been swept out into the lake and completely lost to us. As it was, our position had a very threatening appearance, for it looked as if our means of travelling was lost to us. We could see that the boat was badly broken, and it dawned upon all three of us, as my companions did not attempt to conceal, that it would be impossible for us to make our way on foot, in such a country as this, to the districts inhabited by civilised man. My companions fairly lost their heads; and I must confess that, for a time, I gave way to despair myself. However, during the afternoon we pulled the boat close up to the shore, but she was so heavy that we could not drag her out of the water. While we were toiling to effect this, some of the male

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INDIANS HELPING TO SAVE THE BOAT.

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Indians, and even some of the women, came, and seizing the ropes and woodwork of the boat, hauled her bodily ashore. Thus did these poor people spontaneously render us invaluable aid. I believe that eight of the Indians were lost. We recovered the bodies of four—two men, a woman, and a child; and these we buried under the trees, the men and women weeping and howling around while we were engaged in this most painful task. All the arms of the deceased men were placed in the graves by their companions.

Our goods, which were piled on shore, were scattered in all directions by the wind, but except by breakages we lost but little. Many of the specimens collected up to this time were, however, spoilt. The poor savages, for whom my heart ached, helped us to collect our belongings, and though they had previously pilfered a few articles, they honestly gave up everything now in this the hour of our mutual distress. A more wretched night than that which ensued I have never endured. The wind still continued to roar among the trees, and was too strong to permit of our making fires. It blew from the north-east, and was piercingly cold. The Indians collected around us, huddled up on the ground in a wailing, weeping group; the dogs also, from time to time, setting up a dismal howl, as if conscious of the general distress. We had lost two of ours, which were supposed to have been swept into the lake. At first all four were supposed to be lost; but at night two, and some of the Indian dogs, returned from the woods, whither they had fled in their first terror. The next day many birds and monkeys were found dead under the trees, and these were eaten, in most cases raw, by the Indians. In the course of the day a young child which had been injured, died, and some of the Indians went into the woods and did not return.

The boat was badly damaged, and it took us five days' incessant labour to repair her. In this work our

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success was doubtless the result of the valuable aid of Jose, who had been a ship's carpenter. I was thankful to see the boat again afloat, and watertight. On the following days we got the stores aboard of her and prepared to depart, the Indians meanwhile making many expressive gestures to induce us to remain. They nevertheless helped us in every way that they could, being evidently desirous of showing their goodwill towards us. Parties of them went every day to hunt, but the game they secured was mostly small, such as birds and lizards, and even snakes and small mammals. They made no attempt in our sight to catch any of the fish which swarmed in the lake, but one day a man brought in a few small fishes. As we did not understand a word of their language, it was impossible to question them on any of the many points which would have added interesting matter to what we learned concerning their ways and habits. One man brought in a small animal of the weasel tribe, and, on my trying to make him understand that I wished to have the skin, he readily gave me the entire animal. I, on my part, gave them everything that we could spare that could possibly be of any use to them. They displayed much desire for steel knives, scissors, and hatchets; and the women for needles and threads, which, though it is certain they had never seen before, they immediately showed a great aptitude in using, after watching us mending our clothes; and one woman actually made a sort of sleeved garment for her baby with surprising skill. Pieces of cloth and linen which we gave them they at once converted into aprons. Some of their aprons I procured, they being, as I have already said, beautiful specimens of embroidery. The day we left, the women and children, and some of the men, sat on the shore and wept bitterly, often raising a loud cry. Most of them followed along the bank of the river until nearly the close of the day.

During the continuance of the wind-storm just

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ANCIENT STONE HUTS ON THE UPPER PURUS.

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described, and for twelve hours after its subsidence, the sky was quite cloudless and bright, though the heat of the sun was much subdued. Then we had three days of continual rain, such rain as I have seldom seen even in the tropics. The water fell in streams, not drops, and we could not see a hundred yards out over the lake. There was also continuous thunder and lightning of a very heavy character; but we worked on through it all, for we could not afford to linger. In the stream which connects this lake with the Purus there was at least three feet more water than when we came up it, and the current was so strong that it drifted us down at the rate of at least four miles an hour. Much of the adjoining country was put under water by this downfall of rain.

My companions were now getting very anxious to see the end of our journey, but I could not resist the temptation to enter another of the many tributaries of this great river. The stream chosen was this time on the right or east bank of the river, and like most of the others which we explored it took its rise in a small lake. It is quite possible that many of these lakes are not of a permanent character, and perhaps all dry up in unusually dry seasons. Few of them have a great depth, and many have all the appearance of being simply inundated valleys. As the canoe was lost in the recent storm I could not make a very close examination of this particular lake; but it appeared to be about four or five miles across, and as we could count thirty islets within it it was probably very shallow.

But the most interesting objects here were the ruins of a number of stone buildings, which appeared to be of very great antiquity, and, from what I saw in other parts of South America, are, I am convinced, of native origin. I mean that they must have been erected by some of the civilised, or semi-civilised, nations which inhabited the country prior to its occupation by the Spaniards and Portuguese, and who have been exterminated by those

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peoples. There was nothing that could be called striking in the architecture of these ruins, which seemed to have been mostly square houses, or rather huts of low elevation and small size, scattered over a goodly stretch of ground, and forming what I conjectured to have been a town. The most puzzling circumstance was where the stone with which these houses was built could have been obtained. Throughout our journey we saw no place where such slabs as we found here could have been hewn. And then the transport! though it is true that many of the ancient nations performed prodigies in this way. I supposed some of the slabs to have weighed a ton, though this is only a conjecture. Many of the side walls were formed of a single slab about eight feet by six, and four or five inches thick. They were roofed in, sometimes with one slab, sometimes with several; but in the majority the roofs had fallen in, or, which I think more probable, been torn off by the Indians. Those people had undoubtedly been here, and done much mischief. The entrances to those huts which were still entire were so low that they could only be entered by crawling on the hands and knees. Similar huts were afterwards seen in Peru and Chili situated in the mountains, and acknowledged on all hands to be remains of the original inhabitants of the land. Here they were buried in forest and jungle, and we had to clear away the rank growth of grass and plants before we could examine them. Many had been frequented by wild animals which had formed their lairs in them, and several we found to be full of snakes and other noxious creatures. A wild dog rushed out of one with a savage growl. Near the lake was a remarkable mound, similar to some I saw in Mexico during my stay in that country. It was about twenty feet high, with sloping sides, forming a truncated pyramid. There had been a stone hut on its top, which was completely broken in pieces, and the whole mound was covered with tall trees and matted creepers, and it was

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only by careful examination that its original shape and artificial construction could be discovered.

The site of this ancient city was a favourite resort of many animals. We shot several deer here, and a very fine tapir, and the venomous snakes were a great danger. Some of them were six or seven feet long, and the way in which they lurked in the long grass made it almost impossible to avoid treading on them. In some marshy ground I killed an anaconda which was just over twenty-four feet in length, and this is the largest serpent I have seen in any part of America. It was an immense reptile as thick as a man's body, being forty-two inches in girth in the thickest part. A single bullet in the head was sufficient to kill it. An attempt to preserve the skin of this immense creature failed. Before the serpent was killed it looked much bigger than it proved to be, and I realised how easy it is to exaggerate the size of any creature we have not had the opportunity of accurately measuring. Big things, while still at large, look much bigger than they really are; and there seems to be an almost irrepressible tendency in the human mind to exaggerate the size of any animal which is of abnormal bigness.

Big serpents was one of the principal objects of my search in these wilds, and I was specially desirous of ascertaining if there is any truth in the accounts of some travellers of anacondas and pythons of forty or fifty feet in length. Indeed, I have read some apparently trustworthy accounts of serpents of nearly seventy feet in length. Naturalists generally, I am informed, discredit these accounts of abnormally big snakes; and I am a partaker of their doubts. Anacondas of thirty feet long certainly have been found; and it is possible, I am told, that they occasionally exceed this length by five or six feet; but beyond that length it is extremely improbable that snakes have been found in South America, or any other country. To this opinion

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I must agree; but I think my experiences justify the remark that there are certain classes of animals, individuals of which sometimes develop to an abnormal extent, insomuch that there seems to be scarcely a limit to their powers of growth. Amongst those animals, which are of a comparatively low type of organisation, are certain fishes, eels especially, spiders, some crustaceans and snakes. From some cause, perhaps an abundance of favourite food, or congenial surroundings, or peculiarity of locality, individuals of those animals sometimes attain to enormous dimensions, quite out of the ordinary size of their kind. This is particularly the case with the anaconda (often most improperly called a boa-constrictor), and it may be well to exercise some caution in either accepting or rejecting accounts of enormously big specimens of the genus. The anaconda is not a very abundant serpent anywhere in Brazil. The usual length is about sixteen feet, with a girth about equal to that of a well-developed man's thigh. Larger specimens than this are very rare. I have made a most careful examination of some of the least-known forests of the Amazon Valley, where a white man had never before penetrated, and if there were monsters there of forty or fifty feet in length I cannot think I should have failed to find them. Possibly in some obscure spots an anaconda may prolong its existence until it attains a length of nearly forty feet; but if so, these are very exceptional cases; and I cannot learn that any museum possesses a skin of anything like this length; and most of the skins in museums have been stretched while still moist. Indeed, it is almost impossible to skin an anaconda without, more or less, stretching the skin.

Small deer, monkeys, ant-bears, and sloths are the largest animals that anacondas are capable of preying on, and the bulk of their food consists of very much smaller creatures than these. They are especially fond of dogs; and wild dogs are often destroyed by them. As a rule

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(I think invariably) they capture their prey by surprise, lying in wait partly submerged in marshy places. They seize their victims instantly; and this is the only time when I have seen them display much activity. As a rule they are slothful, apathetic creatures, and I could never discover any certain evidence of their attacking men. In fact I do not believe that the largest individuals could kill a man; at all events if he fought for his life. The stories of their having attacked bullocks and horses are not true. I am convinced that even a serpent of seventy feet long, supposing such to exist, could not swallow an animal the size of a bullock. It is only the largest anacondas that can swallow the small deer of these regions if full-grown. The anaconda, after feeding, always lies for a lengthened time in a torpid state; but though I have heard that they bury themselves in the mud, and lie dormant at seasons, I could not find any evidence of their so doing in Brazil. They climb trees, but are more often found on the ground, and their habitat is always where there is plenty of water, which is an essential to their existence. They are more often found in extensive marshes than elsewhere; but occasionally they haunt the banks of great rivers, and I have found them dead, or helpless, floating in mid-stream of more than one of the great rivers of Brazil; but in some of these cases I have suspected that caymans have destroyed the anacondas. I know that they sometimes attack them. I once saw a cayman seize an anaconda, apparently about sixteen or eighteen feet long, which was lurking on the brink of the river Coroa; but from the first I saw that the serpent had no chance whatever. In spite of furious lashings and writhings it was dragged under water, and doubtless killed. In a victim of this size the cayman would not commence its meal at once, but would hide the carcass in a hole, or under a bank, and wait for its decomposition. Hence, no doubt, many of those dead

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anacondas which are frequently found floating in Brazilian rivers owe their death to the former reptiles.

The tail of the anaconda is prehensile; that is, he can use it to wrap round the boughs of trees when climbing; but I doubt if he can suspend the whole weight of the body on it. I have noticed that when they hang head downwards they always have more than one coil of the tail wrapped round the bough from which they are suspended. When they seize prey in this position, which they often do as it passes under the tree, if it is large of size they always come to the ground to eat it. The act of swallowing is a slow process, as is the previous one of killing the victims. Fold after fold of the horrid body is wrapped round the struggling victims and the pressure slowly applied, the serpent frequently relaxing its pressure and permitting the victim to partially revive. In a word, like the cat, it plays with its prey, and is equally cruel. They never bite their prey: the teeth being singularly small, and curved backwards towards the throat, being evidently intended to simply prevent the food slipping back from the gullet during the process of swallowing. A great deal of saliva runs from the mouth during this process, but they do not deliberately shed it over the prey for the purpose of lubricating it. The prey is killed by suffocation, the result of intense pressure; but the bones are not broken in the manner reported by the old school of naturalists; nor do anacondas attack jaguars and pumas for the purpose of preying on them, though I think that fights sometimes take place between these curiously matched creatures; for I afterwards found the carcass of a jaguar near Pastos Bons, Maranhao, which showed every appearance of having been killed by a constricting snake, which afterwards seemed to have made an attempt to swallow it, and failed on account of its great size. Anacondas do sometimes kill prey which is too large for them, and make desperate efforts to swallow it; but

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I know that the jaguar is very fond of snake's flesh, and frequently attacks anacondas, and the boas also, which are found in these forests, and no doubt he sometimes catches a tartar. Of the breeding habits of the anaconda I did not succeed in learning very much, but I have little hesitation in saying that the eggs are hatched in the creature's body, and the young brought forth alive. The young shift for themselves when less than a yard in length; but I have found a female with eight little things crawling around and over her.

Another creature found here excited my curiosity almost as much as the anaconda. This was a bird-eating spider. While I was sitting on a slab amidst the ruins just now described, I saw some dark-coloured creature drop from a bush with something white in its clutches. Its movements were so quick that it disappeared before I could see what it was; but in rummaging at the place where it had disappeared I turned out an enormous spider. So active was it that it was only with difficulty that I prevented its escape; and when held down to the ground with a stick it worked its mandibles savagely, and was altogether such a revolting-looking object that I should not like to have handled it whilst alive. When spread out without stretching in any way its thick hairy legs covered a space of seven inches by eight, while the actual body was more than three inches in length and bulky in proportion, being of a dusky colour, with broad black bands on the legs. But this was not the largest specimen obtained, though it had the longest legs, for in another the body was half as big again. The object the first specimen had been carrying was a young unfledged bird. It was just alive when picked up, but died immediately afterwards.

These spiders are not very numerous, and though they are furnished with spinnerets they are not true web-spinners. They weave a lurking-place, a kind of a tube, which is carefully hid under tangled roots, under the

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boughs of trees, or in holes and crevices in the trunks; but they do not spin a web for the capture of prey. Bird-eating spiders are found all over Brazil, but those on the Purus, if not a distinct species, greatly exceed in size any that I have seen in other parts of the country; and they may be classed amongst the most ferocious of living creatures. I have seen young ones not exceeding a pea in size attack other animals ten times their own bulk. Often they endeavour to secure victims they are not strong enough to overcome, and quite frequently they prey on each other. The particular species found here seize birds as large as an English thrush, surprising them among the leaves of the trees, and apparently paralysing them by a poisonous bite. They catch these birds with a sudden rush in which their movements are lightning-like; but they also run about the ground, when they seize any small reptile or insect that comes in their way. Large beetles three or four inches long are completely sucked out and left a mere hollow shell; but the birds are sucked into a shapeless mass, which, when rejected by the spider, is quite unrecognisable as the remains of a bird unless for the head and beak. It is a blackish slime-covered mass, something like the quid or pellet ejected from the stomach of a bird of prey. Even scorpions are not spared by this spider, but are seized and devoured without being able to do the spider any harm; but there are several species of comparatively small hunting-spiders that will readily attack scorpions, though I find that fact strongly doubted by many naturalists. I, however, am writing from experience of what I have seen, and I do not feel called upon to repress a fact because of its supposed improbability. I make this remark in no spirit of self-assertion, but simply state a fact which I know may not be received without scepticism. I have watched spiders very closely, having a sort of half-fearful interest in them, for I consider them most loathsome creatures; and I can say that many of

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them are very remarkable for difference of habit in individuals of the same species. Thus, what one spider will shun in evident fear another will boldly attack, and though nine spiders will cut a hornet or wasp from their webs, and so get rid of it, the tenth will boldly attack and master it.

I kept one of these spiders in confinement for a time. It would kill mice and the largest rhinoceros-beetles in a twinkling, but ran round and round its box, evidently seeking to escape. When disturbed it rushed about, moving its mandibles as if gnashing them with passion. I put a small snake seven inches long into its box. The reptile was almost paralysed with fear; but the spider did not attack it. Another small snake of a poisonous kind was equally fearful, but the spider, while not attacking it, evinced no fear of it, and frequently passed over it while running round his box. When a piece of raw meat was given to it, it ran about with it in its mandibles, and never released it until it had sucked all the juices from it. Ultimately this spider spun a lurking-tube or tunnel in one corner of its box and settled down. The rascal knew when he was going to be fed, and as soon as the trap in his box through which the food was put was touched he would dart to the exit of his lurking-tube, and the moment the food was dropped rush upon it. At first he ate ravenously everything that was given him, and he always killed any living prey that was put into his box; but after a time he appeared to be satiated—ate little or nothing—resumed his restless habits, and died about three months after his capture. Though I could never induce him to kill snakes, not even of the smallest size, he relished a lizard, and he never failed to immediately pounce upon other spiders.

It is a mistake to suppose that these spiders, when in a wild state, attack only young birds in the nest, or that they capture birds in webs: I never found a web-spinning species. They are hunters, though they spend much of

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their time lurking in their hiding-places, and always, I think, unless far from home, carry their prey to their dens to consume it. If disturbed in the trees, where they wander to surprise birds, they will let themselves drop to escape, though the distance to the ground may be considerable; and they are so active that it is exceedingly difficult to capture them. They are nocturnal creatures, and are seldom seen abroad except in the evening or early morning, though I have found occasional wanderers at all hours of the day. I have no positive evidence that their bite is poisonous, but I think there can be no doubt about it. All their victims, even if rescued immediately after being seized, seemed to be paralysed, made no attempt to escape, and speedily died. I have tried the experiment of dropping insects, pieces of raw meat, &c., in front of their lurking nests. They would instantly dart out, seize the bait, and be back again so rapidly that a clear view of the creature could not be obtained. They were very susceptible to injury, and if in the attempt to capture them they were at all roughly touched with the stick to which the net was attached, they would draw up their legs, and be dead very speedily. Two would not agree together in captivity; they fought, and both were dead in the morning. They seemed to have a kind of hook arrangement at the extremity of the legs—on the feet, if I may use the term—which enabled them to catch the inequality of the surfaces over which they ran. They could not escape from any vessel with smooth sides, as a glazed pan, or a box with glass sides, or run with their bodies downwards, as a fly on the ceiling. I believe this applies to all spiders. I have never seen one run up glass or any other perfectly smooth surface, and they are certainly all incapable of running across the ceiling, or escaping from a glazed vessel with vertical sides; for in such a vessel I always kept those whose habits I wished to watch. This is somewhat of a digression, but I think it is best to say all, or most, of

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what I have learned of a creature's ways and habits in one place, though the information may have been gleaned over a wide area, and taken long to collect.

The late wind-storm had passed over this spot, travelling, it seemed, in a south-westerly direction, and causing great destruction among the trees; many of great size being uprooted, and large limbs torn bodily off: while in many places the banks of the river had fallen in, causing great gaps like bays. From what was noticed here and at other places, it seemed that the lateral breadth, or extent, of the storm did not exceed some ten miles. And what was more singular, even within the direct course of the storm, many isolated spots seemed to have escaped the general devastation without any discoverable cause; and the damage was greater on the outskirts of the storm than in the actual centre of its course. The great fall of rain had had the effect of reflooding vast tracts of the country, and we found the caymans now more numerous and troublesome than at any period previously during our journey.

Before leaving this neighbourhood I made the discovery of a strange tract in the heart of the forest, of perhaps a square mile in extent, in which every tree was dead, and had been for such a length of time that the trunks were bleached nearly white. Many of them had fallen, and were lying in confusion in every position, from an angle of ninety degrees to the ground. From those still erect huge shrouds of Spanish moss trailed downwards, intermingled with trailing plants, which were likewise dead. Occasionally I have found similar tracts of dead trees in the forests of both North and South America, but have never discovered a reason for this singular phenomenon. Wilson, in his "American Ornithology," asserts that the passenger pigeons, during their migrations, used to settle in the forests in such vast numbers that their dung killed many square miles of the trees; but I cannot receive this assertion. There is much in

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Wilson's book that is contrary to my experience, and I must make the same remark with regard to Audubon's work; but the writings of Prince Napoleon prove him, in my opinion, a far more reliable observer than either of the two first-mentioned writers.

In coming to the conclusion of my voyage up the Purus, I am desirous of making a few more remarks about the natural history of this wonderful region, but at the same time wish to avoid making the book appear like a catalogue of birds and beasts, therefore I will be as brief as possible. Generally, I remarked, that nearly every mammal, bird, and other animal which is found in Guiana, and the Amazon Valley, was present on some part of the Purus; and besides these, several undoubtedly new species were met with—at least that was the opinion of the American naturalists who purchased them; and such collections as I succeeded in making were eagerly bought up, either in Brazil or the United States.

Incidentally I have referred to a wild dog above. There are throughout South America a number of fox-like animals, which are classed with the dogs by professional naturalists; no true fox or wolf, it is said, being found in the southern division of the continent. But most of these animals are exceedingly fox-like in general appearance. The dog I have mentioned is, however, an exception to this rule, and is an undoubted dog, though it differs much in appearance from any other wild dog I have met with. It was not seen often on the Purus, but it extended over a tract that was quite six hundred miles in length. I think that the animal is of nocturnal habits, which would partly account for its not being often seen. It is the size of a somewhat small dog, of a dark grey colour, with black legs and tail, the latter being bushy like that of a fox. There are some traces of brown colour about the muzzle and face, and the ears are of a peculiar rounded form, quite unlike those of a fox. This dog is

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of solitary habits, and very shy and cunning. It was occasionally seen watching us, with the body partly concealed by bushes or grass, but fled the moment an attempt was made to approach it closely; and I failed to obtain a specimen of it. At night-time a prolonged, wolf-like howl, which was occasionally heard, was supposed to be the cry of this animal, but I have no evidence that it really was so.

With a gigantic otter found on the upper Purus I had better success, and several fine specimens were secured, the largest of which weighed over seventy pounds, and in one case seventy-five pounds. The total length of this otter was, in the case of the largest individual, over six feet; and the colour was a dark reddish brown on the back, and a lighter shade of the same colour on the under parts. On each side of the tail was a line, or mark, unlike any I have seen on other otters; and the animal was usually seen in parties of ten or a dozen. As I have already incidentally noticed, it was fond of crawling on to the broad leaves of the *Victoria regia* lily, which were well capable of supporting its weight. Frequently have I seen them asleep, or basking, on these lilies, and they resort to them to eat the fish which they have captured, as well as to play and gambol with each other. Doubtless it is a safer resort for them than the jaguar- and puma-haunted banks of the river; and it is a curious fact that I could not discover that either these otters, or any other animals frequently swimming the river, were often molested by the many caymans which haunted its waters. One which was captured alive by means of a noose fought desperately, and had to be killed before it could be taken on board the boat.

About this time all three of us were more or less ill, as the result of exposure to the climate. The prow of the *Firefly* was therefore put towards home. On the journey down stream she was worked almost entirely by myself and George Maccara, the Brazilian becoming worse

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and worse. His constitution, exhausted by a life of carelessness, was incapable of resisting the effects of exposure and hardship during this voyage; and he repeatedly said he knew that he was going to die. His great desire was to see a priest before he departed. I therefore stopped at Pesquera, on the left bank of the Amazon, and would have left Jose there had he not been desirous of returning to Obydos with me. He declared he had not a friend left in all the world, and having eased his mind by confession to a priest, was little inclined to part company with me. I, on my part, was much interested in a man with whom I had lived in close intimacy for many weeks. We all therefore remained together at Obydos until Jose died, about a month after the conclusion of the voyage. Poor fellow! He lost confidence in priests before the end came, and cared for nothing but to have me sit by him, and read to him; and the impression left on me was, that the man had erred in life more from want of sympathy and friendly leading than any other cause. As he himself used to say, sailors are so often treated as dogs by skippers that they have no encouragement to do right. His money, and the few things he possessed, I sent at his desire to a young woman with whom he had been acquainted. His mate, George Maccara, the Venezuelan, remained with me the whole of the time I was in South America, and notwithstanding the character with which these two men came to me, they both served me faithfully and well.

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CHAPTER V

RAMBLING DAYS IN A CENTRAL BRAZILIAN FOREST

THE character of my wanderings in South America were of such a nature—erratic and often having no other object than the gratification of my own sweet will and pleasure—that I cannot pretend to present my notes in the form of a connected book of travel. Often I spent prolonged periods at some isolated spots in the forests or on the rivers, or among the mountains, as far away from the haunts of man as I could possibly get, studying the ways and habits of beast and bird, by day and by night, until many of my friends took me for a crank. But to me it was a paradisiacal life, and if I were young enough and strong enough, I should be at it again to-morrow. Possibly my notes are of no great value—I half fancy that is the opinion of the scientific world. There are so many observers nowadays who make their observations in an orthodox way that there is no room for an Ishmael naturalist such as I. There is an orthodox way in science, just as there is an orthodox way in religion, and unfortunately I find myself too often opposed to that which is orthodox. I never seem to be able to get as close to God in front of a pulpit as I did when standing in front of His mighty works in the wilderness; and the confirmed notions of the "scientist" (how I hate that newly coined word) seem to me to be too strongly set on conventional lines. Rules are rules, and rules there must be, no doubt, but I suffer from the common human failing of loving my own opinion, and I do not like my facts ruled out of order when I know that they are facts.

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So I am writing this book in a style which I hope will please the not too scientific reader, however it may be received by the professional naturalist.

Matto Grosso, the Great Forest, as the reader probably knows, occupies the whole centre of Brazil. The forest extends much beyond the province bearing the name; in fact, I think it is the largest forest on the earth's surface—much exceeding a million square miles in extent, and what is more, it has not yet been much reduced in size by that destroying angel, man. Much of it is an impenetrable marsh, and nearly everywhere the growth of trees and jungle is of the densest nature. There are a few bare spots within its bounds, but they are never of great extent, often only a few acres in area. How it comes that there are these bare places surrounded by dense forest is one of the mysteries of the district—like the patches of dead trees. In the month of May 1885 I was encamped in one of these small savannahs, near the source of the Fresco river, about one hundred miles eastward of the town of Lara. My only companions were George the Venezuelan, two hired Indians, a negro ex-slave, and seven mules. The negro was a deplorable specimen of mankind. Never in my experience have I come across a fellow-being in whom the attributes of manhood were so effectually and terribly stamped out. He had been born a slave, and bred a slave, until his freedom was purchased under the conditions of the 1871 Emancipation Law. His back was a horrifying sight. In the course of his life, at various times, thousands of lashes must have been inflicted upon it. His stories of beatings, starvation, and torture were terrible to listen to; yet he was a man of enormous physical strength. He was engaged by me to look after the mules, in which work he was exceedingly skilful. I am rather partial to negro servants. Properly managed they are most useful and industrious men. This man, from long subjection to the task-master, had acquired much of the cringing

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nature of a dog. When giving him orders he appeared subject to nervous trepidation, and if spoken to at all sharply he sprang about as if his life depended upon the immediate performance of his directions. At meals, in the forest, I need scarcely say, we could not indulge in the decorum of a well-set table; but our custom was to sit on the ground round the cooking-pot, and help ourselves in a rough and ready fashion. Yet this poor negro was afraid to eat in my presence, and the discomfort it caused him to take his humble fare in the sight of me, his master, was such that I was fain to let him take his food back among his mules where he could not be seen. He did not know his age—it appeared to be between forty and fifty. He had had five wives. Four had been sold away from him, and the other had died of injuries inflicted by a brutal master. He had had no choice but to marry (if marriage it can be called) at command of his master, the object being, as with cattle, to raise stock. His ignorance was such that he scarcely remembered how many children he had had. Some had been sold from his sight, and were lost for all time; others he knew the whereabouts of, being still slaves; and he was saving every penny he could earn to purchase the freedom of a favourite son. Among the devilish cruelties to which this man had been subjected was being hung by the wrists for twenty-four hours (a day and a night) and the fearful marks on his wrists showed there was truth in his assertion. He was unconscious during the latter part of this terrible punishment. I think it scarcely necessary to notice the assertions of some who have denied that the torture of slaves was general, or at all events frequent, in Brazil. I have never met any one who knew much of the country who was of that opinion. The fact is that the torture, in the most revolting manner, of slaves was habitually practised by nearly every master in the country, and when I was there you could scarcely go into a town, however small, without

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seeing numbers of negroes who were either blind or maimed as the result of their owners' brutality. They were always fed and housed, I was going to say "like dogs," but like cattle is a better simile, for their owners often thought more of their dogs than their slaves.

The two Indians were taken to assist with the mules, and to strengthen the party generally. They were of the semi-civilised Indians found, more or less, in all the outlying towns and districts of Brazil. There were no striking features in their character that call for present notice, but they were both excellent woodmen, not yet quite spoilt by lounging about the towns, and being both young men were easily manageable. Not one of the party, except George the Venezuelan, could speak a word of English, so I was dependent on him, in great measure, to act as interpreter, though I was now beginning to jabber a little Portuguese.

We had not reached this spot without great difficulty; but I will not describe the journey up to this point, as it is devoid of incident of exciting character; and my object being to get fairly into the wilds with all speed, I did not stop *en route* to make any observations. This savannah, the extent of which might have been twenty acres, was quite buried in the forest, and I do not know that there was a civilised post or house within a hundred miles of us in any direction. The ground was covered with short grass, and here and there a bush, but there were no trees, although the forest hemmed it in closely on all sides. It was a most convenient spot in which to halt, as fires could be made with perfect safety, which is not always the case in the heart of the forest. I have a strong opinion that these small savannahs, of which I have found several in the densest parts of the forest, owe their origin in some way to animal influence. It seems impossible in any other way to account for the strange fact that the trees do not seem able to encroach on them.

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I should like, if it were possible, to cause the reader to realise what the forest is like in such a spot as this. That, I fear, is impossible; but I will try, by painting the scene just as it appeared to my eye. I had no sooner got among the trees than the savannah was completely lost to view, and it occurred to me that these naturally clear spots may be more numerous than at first would appear; which undoubtedly they are, if I am correct in guessing their origin. The trees surrounding me were upwards of two hundred feet high, but it was only occasionally that glimpses could be obtained of their tops. As is usual in such situations, the trees were closely laced together by trailing bines, many of which were loaded by magnificent clusters of the most gorgeous blossoms. The ground under the trees was covered with a thick, jungly growth, in which you are continually getting buried. Here there are many small snakes and noxious insects; and I got specimens of a very small, venomous snake, of a light drab or cream colour, with a remarkably bright eye. The Brazilians insist that this snake, which never exceeds a foot in length, and is usually much less, allures its prey by the fascination of its eye. I think this is sheer nonsense, as I do not think the snake preys on small birds, as they assert. On the other hand, gentlemen of intelligence have assured me that they have seen humming-birds, and other small birds, actually seized by the snake, and that the victims were most certainly fascinated or paralysed by fear. This must be the case, if humming-birds form part of its prey, for the snake never climbs above the ground on either bush or tree. It has certainly the brightest eye of any snake I have seen. It is highly venomous, and is generally known by its native name of *tarangabos*, but locally it is sometimes called "the enchanter." I cannot find it figured or described in any book to which I have had access.

In few places in the forest is it possible to see more than forty or fifty yards in a direct line. The light is

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dim, on account of the thick foliage, and what one sees is a number of straight tree-trunks, shooting upwards and fading into mere shadows without revealing their tops, except here and there where some mighty storm has brought down not one, but a whole cluster of trees. These fallen trees are a feature of the interior of the forest. There is not room for them to fall right down to the ground, except in exceptional cases, and they lie in all sorts of positions, often inclining, two or three interlocked together. Even where such a rent has been made by some mighty thunderbolt, it is seldom possible to see the sky. The ever-encroaching creepers and expanding foliage soon canopy over the space above, but rather more light than usual may be admitted, and you can see, perhaps, nearly a hundred feet up the trunks. To wander in these forests is impossible for a European, except he refers constantly to a pocket-compass; but it is exceedingly rare for the Indians to get lost. Such accidents do occur, and one of my men told me he got so lost, and was a whole month and never saw the sky. He subsisted principally on sloths, snakes, and such small animals as he could capture, with fruits from the trees, and ultimately recovered himself by following down the course of a small river. I may say that if a hunter keeps his head, and has his arms with him, he might live in these woods for months without fear of starvation. There is always game of a sort to be found here; and some one or other of the species of trees seems to be always bearing fruit. The great difficulty is to strike a true course in any particular direction, and the old assertion that a person wandering aimlessly in a forest or desert will move in a circle appears to be true.

A person unused to the forest, however, would be in a sorry predicament, for it is only the practised eye that would discover the few animals that harbour in its depths. These are chiefly ant-bears and sloths, and some smaller animals which will be noticed in due course, and these,

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and particularly the former, look, even when you are close to them, so much like a bundle of the dried herbage that they often escape the eye of the hunter, and would be sure to do that of the novice. Birds there are none in the depths of these gloomy forests, except at spots where there are gaps and along the courses of the brooks. Walking is difficult, and without the aid of an axe it would be impossible to keep in any given direction. There have been occasions on which I have been compelled to travel through stretches of this virgin forest, and found it impossible to cut a way through at a greater rate than two miles per day, working with axe in hand at least fourteen hours out of the twenty-four. The life does not suit many men, and I have known some to break down under the strain and lose their reason. Such men's insanity generally takes a dangerous form, and they almost always give the first warning of their terrible malady by committing some dreadful outrage on their fellow-travellers. I myself delight in this solitary life, but it has quite unfitted me for the bustle of civilised existence, and life in towns, or populous places, has become exceedingly irksome to me, and my experience is shared by many other old wanderers whom I have known.

Standing among the trees, not two hundred yards from my camping place, but completely out of sight of it, I became aware that the air was filled by a most abominable stench. I had not yet made the acquaintance of that revolting brute the skunk, and I did not expect to find that creature here, yet I mistook the vile odour for that of an animal of that kind. Looking carefully around in the hopes of discovering the animal, I could see nothing until my attention was attracted by a little squeaking cry in the trees above, when looking up I saw two small animals, one pursuing the other with considerable activity, uttering a plaintive squeak as it did so. These animals were tree porcupines, very different

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creatures, in outward appearance, from the typical porcupine. They resembled great rats covered with sharp spines all over, including their long prehensile tails, which they used freely in passing from tree to tree and branch to branch. When first discovered they were not more than forty or fifty feet above the ground, but they soon disappeared in the obscurity above. It was from these animals that the stench arose. They are nocturnal in their habits, but I suppose the attractions of love-making had brought this pair abroad somewhat early in the evening. They seemed to be abundant in this district, for their disgusting odour was not only often smelled, but the animals could generally be seen if careful watch were kept about the time of sun-setting. The Indians called this porcupine *coomanda*, and said that it preyed largely on young birds. I saw one myself come out of a hollow tree with a parrot's egg in its mouth, for there was a species of green parrot laying here at this time. All the Brazilian birds appear to breed very irregularly, and there is but a very short interval of the year in central Brazil in which both eggs and young birds cannot be found. In fact, I am not sure that some species or other is not breeding all the year round. The same remark applies largely to mammals; and Nature here seems to have made special arrangements for this continual increase of animal life, for there is certainly no season of the year when some sort of fruit or nut is not abundant. Vegetable life is certainly the base of animal life.

Regarding the general contour of the land in the district, it appeared to be a plateau of some elevation. There was no marshy ground in this neighbourhood, but small brooks were numerous, having rapid currents flowing north-eastwards and a few due east. Where these brooks were broken into many cascades, as was often the case, the scenery was most beautiful, but without that grandeur which is usually met with in hilly districts. The streams were always canopied over with trees of immense height,

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TYPICAL CASCADE ON THE SIERRA PARICIS.

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quite two hundred feet, and there was never what could be called a waterfall, they were rather rapids and cascades of a few feet drop, but in long series, forming vistas of the most enchanting beauty. I could not be sure whether we found the actual source of the Fresco, which is a tributary of the great river Xingu, but if so it takes its rise in a rocky hollow on the mountain side, and soon becomes an unfordable stream, with a strong current and several rocky barriers in its bed. It was the only stream within many miles of our position which was of any size, though brooks and dribbling streams were so numerous that we sometimes crossed a dozen of them in the space of a mile. In these streams there were two kinds of otters, which were so little accustomed to see man that I had excellent opportunities of watching them. The one was a small dark-brown otter, not so big as our English otter; and the other was the Demerara otter (it is *Cheironectes yapock*), which is a marsupial animal—an opossum, I believe, with aquatic habits, in which it differs from all the other known opossums. It is a beautiful little animal, of a light grey colour, with black marks on the back and body, which are of such a pattern that the animal looks as if it had been seized by a smutty hand which had left its black finger-marks on the grey fur. The habits of this animal are precisely those of an otter, but it preys on fresh-water crustaceans and insects as well as on fish; and lives in holes burrowed in the banks of streams. With great labour I dug a few of them out of their burrows, which were from twenty to thirty feet long. There was always more than one entrance to a burrow, and sometimes three or four, and it was necessary to find and block all these entrances to secure the animal. Like the porcupines they were pairing at this season (May), and I could not find any that were not full-grown. They fought for their liberty, and it was necessary to be cautious to avoid a severe bite. One of the large dogs that I had in my journey up the Purus which was still with me was

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greatly interested in these digging-out operations, and killed several of the otters as they were attempting to escape from other holes, but he got one or two bites that made him howl, and served as a timely caution to us. The attack was very sudden, and they flew at the dog like enraged cats. They were also very tenacious of life. These animals would undoubtedly afford much better sport than our common otter to those who like this sort of sport. These otters were a local variety (in my opinion) of the Demerara species, being somewhat larger and marked rather differently, but the difference was not great. It is web-footed, with a long rat-like tail, and, according to several naturalist friends, was not known to exist in this district until I discovered it. My description of its habits and fighting propensities is said to be quite at variance with its habits in other places.

Among the most noticeable animals in this place were deer and peccaries, the latter vicious little devils with which I was afraid to interfere. I have already intimated that I am a cripple and cannot run; but the man who ventures to hunt peccaries must be able to run and climb well if he is not prepared to be made mincemeat of. It is their habit of combining for attack or defence, with their extremely pertinacious viciousness, that makes peccaries so dangerous to encounter. They are so aggressive, too, contrary to the disposition of most wild animals, that it is highly dangerous to go anywhere near them. There are two species of them, the collared and the white-lipped. The latter is a slimmer animal than the former. Both are of a brownish colour, one with white lips, the other with a narrow band of dirty white running from the shoulder to the front of the fore legs. Both species are found in the same forests, but they never associate or mingle together. I may say at once that all that I read of the habits of these animals in books does not agree with my experience. I am not

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desirous of contradicting any man, but unless I state exactly what I have seen and experienced, my work had better not have been written. It is not correct, therefore, as is stated by some, that the collared peccary is a harmless species, or that it roams singly or in parties of less than a dozen. Both species go in herds of about forty to ninety, and sometimes several hundreds are seen together. Both kinds will attack man readily enough, with or without provocation. When a herd is feeding in a tract of forest (they never wander out of the precincts of forests), they often disperse over a considerable area, but they always reassemble when they have done feeding; and their hearing must be very acute, for if one gives an alarm, which he may do by a kind of squeal, or by gnashing his tusks, they assemble to his aid with remarkable speed, rushing together angrily, with their tusks rattling at a tremendous rate. Then the hunter must tree for his life, and he will be fortunate if his foes keep him a prisoner for twenty-four hours only. It would be ridiculous to think of shooting them down. Before he could slay a half-dozen he would be cut to ribbons, so sharp are their tusks; and if he commences firing from the shelter of his tree the peccaries will take cover, but will still wait hours for him. This is not conjecture on my part; I have known the men intimately who have undergone these experiences. There are frequently several herds wandering in the same neighbourhood, and on scent of danger these separate herds will combine. Here, near the Fresco, I several times saw herds of four or five hundred in number, but where there is a human population to thin their number, it is seldom that more than about seventy are seen together. I have said that I did not interfere with those seen here for fear of provoking an attack, but my Indians followed the herds and killed several stragglers, the only safe way of securing a few. The great object is to kill them instantly, for if they have time to utter a cry of pain or

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alarm, up rush the others, and then there are ructions without let or warning.

These peccaries feed grossly, like swine in general. They root in the ground in search of tubers, and snakes form a considerable portion of their food. All swine will eat serpents if they can get at them. Peccaries also glean up the fallen fruits, and especially nuts, from under the trees; and often gobble up any small animal that comes in their way. They fear nothing, and defend themselves fiercely against jaguars and other beasts of prey. The jaguar is afraid to attack a herd, but, like my Indians, makes for the stragglers: he is generally pursued, however, and there are plenty of records of the peccaries having succeeded in destroying him. In such cases the peccaries literally slash the carcass to pieces. They are so vindictive that they are not satisfied with simply slaying their enemy. As game they are scarcely worth powder and shot, for not only is the flesh insipid, but there is also a strong-smelling gland on the back, which, if not removed when the animal is killed, gradually pollutes the whole of the flesh. Although swine-like in appearance and habits, in one thing they differ greatly from pigs in general: they are not prolific, and it is rare that they have more than a single young one at a farrow. Peccaries are small animals, their average weight ranging from fifty to sixty pounds only. The largest specimen I ever measured was only thirty-four inches from snout to rump. They have no tails, or, at least, the tail is only rudimentary. They are well covered with hair—much more so than the domestic swine, but the hair is of a bristly nature. The flesh is more of the nature of dry venison than pork, and there is rarely much fat. No dogs have the slightest chance in attacking a herd of peccaries, and a single peccary is a more formidable antagonist than a boar of four times its weight. I have never seen European boarhounds tried on peccary; but there are no dogs in South America, not even

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bloodhounds, that can be got to attack a herd of them.

The deer found here were of several kinds, and were fairly abundant, though from their habits of frequenting the densest part of the forest their abundance did not at first appear. None of these deer were ever seen in anything like a herd; indeed, herding does not seem to be a habit of any kind of South American deer. The commonest species was one which I recognise from book figures and descriptions as the Brazilian brocket, or perhaps the red brocket. It is a small brown animal, with short spike-like horns, and a somewhat humpy general appearance, the hind-quarters being higher than the fore-parts. This deer was only found solitary, except in the case of does with a fawn. These fawns seemed to have been recently born, for they were very small. There was never more than one with a doe. The venison of this deer was no great dainty, but that of a much larger species, with well-branched horns, was very passable, being fat and juicy. According to horns which I have seen, I think this may be the marsh-deer, but some of my naturalist friends doubt whether that species is found as far north as this, and inquire why I didn't bring a skin, or at least a pair of horns. Ah! if I had only been an Atlas.

One of the largest trees in this neighbourhood was a species that seemed to me to be allied to the cow-tree, of which I shall have something to say in another chapter. This tree is called the bullet-wood tree, on account of the belief that the wood is so hard that it will resist a bullet. It is one of the largest trees of Brazil, though not by any means one of the tallest. I ascertained a specimen to have a trunk diameter of more than four feet a hundred feet above the ground. The tree was in fruit, but the fruit was not ripe. It is said to be like a plum; but the extraordinary fact concerning this tree, if it is a fact, is that it bears fruit only once in five years. The Brazilians

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call it the boorooah-tree, which I suppose to be a corruption of the "bullet" of the timber merchants, to whom the wood is well known. When an incision is made in the bark of the tree, a white juice exudes, looking much like that of the cow-tree, but it hardens into a kind of gutta-percha, and can be rolled into a ball, or moulded into any shape. In Brazil it seems to be put to the same use as gutta-percha, but some which I brought to this country many years ago was looked at as a curiosity, and appeared to be unknown to our manufacturers. Here also was the true gutta-percha tree, of which there seemed to be several varieties.

There were monkeys here, as in almost every part of this great forest which I visited, but from some cause or other which I could not conjecture, they were remarkably scarce, which is my sole reason for mentioning them. The species were the common brown monkey (*Cebus apella*) and the bearded capuchin. There were no spider-monkeys in this district.

Speaking of spider-monkeys reminds me of one of my favourite themes—the spiders in general. The number of spiders in all parts of South America is simply enormous. I do not think their numbers are few in any hot or temperate climate; but in America! Leaning against a tree one day, endeavouring to identify a small animal whose cry had attracted my attention, I noticed that the trunk was covered with a myriad of tiny creatures, all on the move passing backwards and forwards, evidently very busy in their small way. It was not until put under a magnifying glass that these tiny animals could be discovered to be spiders. Of what species I cannot tell. They were very light coloured, a pinky-grey shade, and minute as they were, as active as spiders usually are. They must have been just hatched, and I supposed that the eggs had been laid in the crevices of the bark. The parent spiders must have resorted to this tree for the purpose of breeding to the

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number of thousands at least, as I am sure the young spiders might have been counted by the hundred thousands. No bird-eating spiders were seen here, but there were plenty of web-spinning spiders of large size; and I noticed here what I have noticed in many different parts of America, including some of the States, that if a spider has any mark of a crimson or red colour on its body, its bite is highly venomous. I do not know that the bite of any spider is actually dangerous to a person in health any more than that of the scorpion, but the bites of several species are capable of greatly disturbing the human system, and I should think would be quite as likely to lead to fatal results to some persons of susceptible temperament, as that of the hornet, wasp, or scorpion, all of which have occasionally destroyed life.

The animal whose cry is mentioned above as having attracted my attention was a large animal like a pole-cat. It seemed to be at least a yard long, was of a dark brown or blackish colour, and very active in its movements. There were two of them in the tree, a male chasing a female; but they were so high up, and quick in turning in and out among the branches, that I could not get a fair shot at them, and failed to secure a specimen. The same evening, when it was almost dark, a weasel came out of a hollow in a tree-trunk with a bird's egg in its jaws. I secured it, and I believe that up to the moment of killing the egg remained unbroken in the animal's mouth. I have often seen small preying animals with eggs in their mouths, and I know that they can carry them away without breaking the shell. It is a common habit of such animals to carry eggs to their lurking places, though they just as often consume them where they find them. The weasel was dark brown, with some marks of white about it. The species was very common, and though evidently a nocturnal animal, it came forth as soon as the shades of evening began to fall, and I have seen as many as a dozen in one party. It was very

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bold, and sometimes if I approached one quietly, it would sit up on its hind-quarters, and permit me to get near enough to see its inquisitive little eyes peering about, turning its head now on this side, now on that, like an intelligent dog when it meets with something it does not understand.

The circumstances under which I first met with this weasel open up a subject upon which I have thought much—the protective colouring of birds' eggs. "Protective colouring" is one of the doctrines of the modern naturalist, and there can be no denying that eggs, furs, and feathers, not to mention forms, in some of the lower creatures, often harmonise with, or imitate their surroundings wonderfully; but is this harmonisation protective? Eggs laid in holes in trees and burrows in the earth are nearly invariably white, though in one case they are black, or nearly so; but eggs laid in full view of the sky are also often white, as those of many waterfowl, sea-birds, &c. Now eggs hid away require protection as much as those laid on open ground, but stoats, weasels, squirrels, rats, snakes, &c., know as well as you and I that hollow trees, burrows, and so on, are the nesting-places of hundreds of birds, and habitually enter such holes in search of their eggs. Where does the protective doctrine come in here? Again, variegated and coloured eggs are usually laid in more or less bulky nests. Do you think a weasel or snake cannot see such nests in bushes and trees as well as you? or that he is not quite as well aware as you what such nests are likely to contain? Yet again the eggs of eagles and some other birds of prey are beautifully mottled, and others which build in precisely similar spots, precisely similar nests, lay pure white eggs, as some vultures. Does not the vulture require as much "protection" from Nature as the eagle?

And with regard to the colouring of birds' plumage and the skins of animals, is it not ridiculous to talk of

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such animals as tigers, jaguars, and pumas requiring protection? In this case I shall probably be told that the protective colouring is to enable them to approach their prey; but that will not do. For I know that such beasts of prey never approach their victims except under cover of jungle, &c., and that the first intimation the latter receives of the vicinity of their destroyer is the fatal roar and rush with which he breaks cover. Besides, birds especially, which agree in habits and haunts, must necessarily require the same amount and kind of protection, at least so it seems to me; but they certainly do not get it. Two or three species of bell-bird are dull-coloured songsters easily hid, but at least one species is pure white! one of the most conspicuous colours in Nature. And I could cite hundreds of parallel cases. The conclusion to which I come is that the doctrine of protective colouring is based on erroneous grounds. Nature's idea is to create a pleasing and curious variety to gratify the eye of man, nothing more; and in that opinion I am confirmed by the knowledge I have that neither coloration nor mimicry (the resemblance which certain animals, and particularly certain insects, have to other animals or inert objects) serves the purpose which naturalists have supposed it was intended to serve. For all these creatures which are "protected" by colour or mimicry, furnish a full quota of the prey of ravenous animals. Then again birds of the ostrich kind all lay their eggs on the bare ground, and mostly in very exposed positions where *it is impossible* for them to escape the eye of any chance passer-by; yet some ostriches lay pure white eggs and others dark rifle-green ones. Why? No reason but a purely speculative one can be given. It may be urged that the African ostrich hides her eggs in the sand. I only know that she does not always do so. At all events American and Australian ostriches do not hide their eggs, but rather seem to wilfully expose them.

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Birds of all sorts are scarce in this particular spot, and small ones, such as finches, and other perchers, almost absent. The maroudi (a bird much like a wild turkey, and nearly as large) was one of the most common. It is very widely spread in Brazil and in the north of the Amazon Valley. But though we could find but few birds, there must have been more about than appeared. For there were many nests in the trees, many of them of great size. Some of these were the nests of birds of prey, and others appeared to have been abandoned by their owners, or the time of breeding was not yet. But the most curious sight was a tree covered with hundreds of long purse-shaped nests of symmetrical make, and about twenty inches long. When I first sighted them I thought it was some curious fruit on the tree. The nests were constructed with a slit-like opening in the narrow part, near the middle of the nest, and the lower part was rounded into a sort of pear-shaped knob. There were no eggs or young in the nests, but some fragments of shell showed that the eggs had been richly spotted on a light ground. No birds were seen; so no doubt it was not the breeding time. Near by two other trees were found likewise containing many nests—I should think about six hundred in all on the three trees; but it was not possible to count precisely. These nests must have been those of some species of "hang-nest," as I have heard them called in the States, or *cassique*. As no birds were seen I conclude that they migrate from one part of the country to another, as many American birds do; though it seems a singular habit in a country like Brazil, in all parts of which there must be an abundant supply of food all the year round.

The great ant-eater was here seen more than once, and, judging from the fineness of the specimens seen, it was a favourite haunt for them. It is a most curious beast, its slender snout prolonged to such a degree that it looks like a trunk, and the fore feet are turned in like

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those of a cripple and furnished with long and powerful claws, which make it a most formidable antagonist if it is provoked, though if left alone it is one of the most harmless creatures that roam the forest. No other animal, I think, has such an immense, bushy tail, which it has the habit of turning up over its back in such a manner that when the animal is squatting on the ground it is completely hid under it, and looks like a tuft of dead grass. But the general appearance of this animal is, I think, so well known that it would be waste of time to redescribe it. Its enormous claws are clearly intended to enable it to destroy the nests of the ants on which it feeds; but they are also a first-class means of defence, and the hug of an ant-bear is quite as much to be dreaded as that of a grizzly, for he will drive these claws slowly but surely right into your chest, and as they are at least four inches long, I need not say what that means. As they never voluntarily make an attack, accidents are rare; but I have been assured, on testimony I credit, that human lives have been lost in encounters with these animals.

Two of us, myself and one of the Indians, were bitten by a large black ant with a body an inch long. The results were not only painful, but made us both very ill for two or three days. Specimens of this ant were afterwards recognised as that of the muniri-ant, said to be the largest and most venomous of all the ants. It is certainly very large for an ant, and of the venom I have no doubt whatever. They gave us great trouble from time to time by getting into our clothes and biting at unexpected times, always with very severe after-results. There were thousands of other smaller ants here, as well as termites, the latter having many hillock-like nests on the ground, at some of which we found the ant-bears at work.

There were so few fish in the brook, and those few so small, that I think the otters must have denuded the waters of them. These animals are so wastefully destructive that I cannot think that this opinion is at all

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far-fetched, especially as where otters were scarce the fish were far more plentiful. They appeared to be principally of the perch tribe, and some of them were passable eating. Nearly all the species of fish found in the brooks had been previously seen in the Purus, where, however, they mostly grow to a much greater size. None caught in these waters exceeded a couple of pounds in weight. I noticed that one small kind, like a roach some six inches long, was in the habit of making a nest, much like that of a sticklebat.

Reptiles and insects were exceedingly numerous, and made our lives a misery to us. Not a day elapsed but some one or more of us was bitten, and we were frequently made severely ill by the bites of these venomous creatures, against which we had no effectual safeguard. Ants, scorpions, spiders, centipedes, and small snakes were the most dangerous; but there was also a fly that bothered us greatly, in addition to our old enemies the mosquitos, and sometimes when rising in the morning more than an hour was spent in bathing our eyelids before we could open them, the matter flowing from the insect bites having glued them together so strongly. As some protection we used to smear our hands and faces with the fat of the deer we killed for food, until we discovered that the smell of this acted as an attraction to the snakes. Large snakes were not numerous, but both boas and anacondas exceeding twelve feet in length were seen. Among the many lizards the most beautiful in appearance was one about a foot long, of a bright copper-red colour. The many-hued, changing sheen of this lizard when it ran in the sunlight made it an object of great delight to the eye. In this place there was a whip-snake, four or five feet long, of a bright green colour, and of marvellous celerity of action. It was very slender, and moved in and out among the bushes so quickly that the eye often failed to follow its movements.

Before quitting this district I must not fail to record

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that several times at evening, and sometimes well into the night, our ears were regaled with the sweet and plaintive song of some bird which we could never find. The song reminded me much of that of the mocking-bird, and I should not be surprised to learn that our entertainer was a member of that genus. Even the Indians would listen quietly to the entrancing strains of our little friend.

Instead of returning to Lara, I pushed gradually south, through a country in which, though densely wooded, game was so scarce that the two Indians had to be constantly employed in the search for it to enable us to subsist. We had to use the axe so constantly to clear a passage that at last my arms became almost paralysed with fatigue. On 4th June we crossed a river which I supposed to be the Guapindas, and four days later passed the Xingu by swimming at a place where it was a quarter of a mile wide, and infested by caymans. We got over without accident; but I remember with dread to this day the terrible labour and privation of the next month. We had to cross and recross the Xingu several times and many of its large tributaries, and two of the mules were lost by drowning. The record of that month is a page of unmitigated suffering. Looking over my old note-books I find that we killed several anacondas during the month which were twenty feet long, and that one night a jaguar dropped right into the midst of us from the branches of a tree overhead, but ran off without attempting to do us any harm. We several times went on short commons, it being most necessary to economise our flour and biscuit, and game being marvellously scarce in this little disturbed district. Probably there was plenty, but the close nature of the country prevented our finding it. We were glad to eat such coarse fare as sloths, tortoises, and caymans. The flesh of the latter creature is sickly, having a peculiar musty taste; but the Indians did not object to it, and, strange as it may seem, our privations did not lead to any grumbling or discontent, and all of us were generally

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very cheerful. George used to amuse me by alternatively swearing, praying, and endeavouring to bribe by promises his favourite saints into sending us good luck. He had served on British ships, and, I used to think sometimes, had some of the ways and spirit of British sailors in him. He was incessantly telling me that he was "a d— bad Catholic." "Then why not become a heretic like me?" I used to retort, at which he would laugh as though it were one of the pithiest jokes in the world. Poor George! Those were happy days we spent together, in spite of suffering, and I greatly fear about the only wise ones thy gay spirit ever permitted thee to indulge in.

At the end of June, our provisions being much reduced in bulk, we killed one of the mules for food; and, which grieved me greatly, I had to abandon more than half the specimens which I had collected with so much care. But our progress through these forests was so alarmingly slow, and so small a quantity of game could be found, that it was fast becoming a question of life or death to push on as fast as possible, our object being to reach the settled districts in the centre of the province. I do not think we ever succeeded in travelling more than ten miles in the course of the twenty-four hours; and usually we only made five or six, working, axe in hand, never less than fourteen or sixteen hours. The herculean strength of the negro was invaluable to us, and I am a strong-armed man myself; but both of us found our strength taxed to the utmost during this terrible journey. George had but a poor fist for an axe, and the Indians were no good at all; but a good thing was that no one lost courage.

Quite suddenly, and without any previous indication of a change, we got out of the forest on 7th July. A ridge of high hills seemed to be the cause of the break, though the sloping sides of these hills were well timbered. On the top, however, we found a tolerably level savannah-like table-land. At first there were many

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clumps of tall trees; but gradually these gave place to a few scattered trees of rather stunted growth, with some bush-covered gullies here and there. There was a species of plover abundant on these plains, distinguished by a conspicuous black breast, and we got a few deer of small size—the species already noticed—with small spike-like horns. In stony places we found great numbers of rhinoceros beetles, four and five inches long, and in similar spots many small venomous snakes, and also a handsome coral-snake (not, however, venomous, I think) marked with orange red and black. Under a bush a large, dark-coloured snake was found coiled round a cluster of eggs, twenty-five in number. These eggs seemed to have been emitted from the snake in a string held loosely together by a kind of thin membrane, and upon being broken were found to contain young snakes only partially formed. From these eggs it would seem that the tail-end of the snake is first developed, a truly remarkable physiological circumstance if I am not mistaken.

Many of the bushes were in flower on these plains, and some of the blossoms were exceedingly sweet-smelling. There were a few small birds about the bushes, the commonest of which was a small grey and green finch, which had a curious habit of running along very quickly on the ground and leaping up at the end of each little run—to catch a fly, I supposed. They were in scattered flocks of a dozen to thirty or so. No birds bigger than the plovers were seen, except a hawk or two; and no four-footed animals except the deer, but we saw numerous burrows, and foot-marks enough of the puma to prove that these animals were by no means scarce.

The view from this elevated plateau was very extensive, and we could see the forest through which we had passed stretching away into the dim distance for many a long mile. Westward the ground seemed to still rise slightly, but in most other directions the view over the tree-tops

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looked as flat as if it had been rolled. There was scarcely any water on the plains, and we were compelled to keep near the edge of the ridge, descending into the valley at night to find it. We suffered much from thirst during the day, although the weather was not excessively hot, but there was a dryness in the atmosphere that made us continually desire drink. We had four mules left, one for each of us to ride, for the stores they had originally carried were by this time reduced to a sorry bagful. But riding on these plains enabled us to get over the ground much quicker than hitherto, and we began to watch the horizon anxiously, on the look-out for the first signs of the smoke of civilisation.

Some of the gullies on the hillside had a driblet of water in them, dropping down in pretty cascades, in places falling fifty or sixty feet. A few of these gullies cut deep into the hillside, though there was not much rough ground. In one such place, where we passed the night of 11th July, there were some interesting caves, which I could not forbear stopping some time to examine. These caves seemed to be quite unknown to any of the inhabitants of the towns to the south-eastward of them. Indeed, I could find but few of the Portuguese who professed to have even visited this neighbourhood; and the entire district appears to be uninhabited, even by Indians, though, no doubt, wandering tribes of the latter sometimes cross these regions. The scarcity of game is probably against the frequency of these visits.

The entrance to the caves is so well concealed that it is a great wonder that it did not escape our notice, and even when I saw the pit-like descent into the rock, concealed among the bushes, I did not think that it was more than a hollow place, until a sudden shower of rain compelled me to seek shelter within it. The entrance was only some five feet high by three broad, and shelved downwards. As soon as I was in-

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side I perceived a glimmer of light at some distance, and found I could proceed along a tunnel-like passage with ease till I came to a spacious cavern which I thought to be about a hundred feet in every direction. It was tolerably well lighted through a cleft in the rock just over my head. Beyond there was a second cavern of twice the size of the first, and this also was well lighted from fissures above, which were three or four hundred feet overhead. There was a very pit-like aperture beyond the second cavern, leading farther downwards into the heart of the mountain, which was so dark and fearsome-looking that I was afraid to venture in without a light. In the two first caverns there were many stalactites of twenty or more feet in length, and stalagmitical columns ascending to the roof, so that both had a grand though weird appearance. On the floor were great masses of semi-pellucid deposit, through one of which I saw the entire carcass of an animal in a petrified condition. There were many petrified animal remains in these caverns, all the bones found being of the nature of stone. I made an attempt to break out the petrified animal, but it was so firmly incorporated in the enveloping mass that it broke to pieces with it. It had been a species of guanaco, of much larger size than any now living; and in these caverns were petrified bones which seemed to have belonged to gigantic jaguars and deer, and many small animals and bats. There was an animal which seemed to be of the rhinoceros kind, but if so it was of a hornless species. The bones of tapirs were here in great mass, but of species half as big again as the living kind. In fact, in both caves there were such an astonishing number of remains of animals so diverse in genera and species that my mind was filled with wonder. I am quite satisfied that this remarkable collection of creatures did not originally come together in the caverns in the ordinary course of their exist-

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ence. They must have all perished together at the same time; and if they entered the caverns in a living state, must have rushed there under the impulse of some frantic fear. For most of them were of species whose habits and haunts are such that they never by any means enter a cave, and if they did, could not be found associating together. It was only the dread of some vastly greater danger that had driven the destroyer and his prey to seek a common place of safety within the bowels of the earth, and I cannot conceive that these creatures came here in life at all. Everything connected with their presence and attitudes in this place point, in my opinion, to the carcasses having been washed here by water. Probably the entrance of the caves has been blocked in the course of ages, for I do not doubt but that these bones are many thousands of years old. I think, further, that it is not generally realised what power of transport water naturally has. We are so accustomed to the works of man on the face of the vasty deep, that we lose sight of the fact that Nature, also, navigates the ocean. In the cases of small creatures, such as insects, I am convinced that many species may be washed, clinging to roots, trees, &c., from one continent to another, and in such vast floods as I believe took place in an early age of the world simultaneously in all parts of it, there is no difficulty in believing that great numbers of drowned animals were washed from one hemisphere to another before they were so decayed as to sink. As a matter of fact, I know that drowned anacondas have been washed from the shores of America to those of Africa. These circumstances may account for the remains of many creatures of a bygone age being found in countries the climate of which now seems unsuited to the existence of such animals. These theories, or surmises rather, I fear are not likely to receive much consideration from those who have established the present system of geology, or attempted to establish it;

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but I have seen enough to lead me to think that the theories of many of the writers of the present century are certainly erroneous. There is no clear evidence that the world was in existence for any great time before the advent of man; but there is clear evidence that the former brute inhabitants suddenly perished in some great and unaccountable calamity of a universal character, and that at, or about, the period of this cataclysm (for such it was) man began to spread over the face of the earth, simultaneously with a remarkable modification of the brute creation—a modification so remarkable, indeed, as to lead me to strongly suspect that the whole of those strange creatures, popularly known as "antediluvian animals," were never living inhabitants of this earth since it has been in any shape under the influence of present conditions. What I mean is this, that the whole world was completely destroyed by that cataclysm I have repeatedly alluded to, and reorganised to suit it to the needs of man, its present lord. That some species of creatures were suffered to escape the general destruction is not only probable but seems to be an established fact. That they, or man, are the descendants of other species widely differing from the present forms, I do not believe.

We were too much pressed for time to thoroughly examine the caves, but I returned to them again before quitting this neighbourhood, and entered the third cave, which descended a considerable distance below the level of the other two — I should think not less than two hundred feet. It was very irregular in shape, about eighty feet in height, and traversed the mountain for quite half a mile, though it was very narrow for three parts of this distance. It was full of stalactites which glittered gorgeously in the light of our torches, and there was much shallow water in it which appeared to escape underground at one corner; but there were no animal remains here. In the other two caves, which were

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tolerably light during the day, there were myriads of bats, hanging, far out of reach, from the roof, which were not at all disturbed by our presence. They were of several species, including the blood-sucking vampire, each kind occupying its own portion of the cave, and in some instances clustering together so thickly among the stalagmite columns as to present one of the most curious sights I have ever seen. From the number of bats about after dusk it is certain that they left the cave at night time, but all our efforts to reach the apertures in the roof of the caves from the outside failed owing to the precipitous nature of the cliffs. In the two outermost caves there was quite a population of small lizards and mice, which seemed to live and breed here. Not improbably they had fallen in from the openings above, and failed to find their way out again. No large beasts of prey or other animals seemed to ever frequent these caverns.

Descending into the valley our troubles recommenced, and in the space of three days we crossed two rivers of magnitude, and eighteen or nineteen smaller streams which were not fordable. Nearly all day long we were using the axe, but at the end of a week we met a party of men who directed us to a small fazenda or farm, probably the extreme outpost of civilisation in this region, where we were not too hospitably received. We, however, obtained meat, fowls and eggs, and some coffee, but could obtain neither bread nor flour, which we were most in need of. We were permitted to lodge in a shed on the estate; but the owner intimated that he should expect us to stay no longer than two days. There were ladies at the house, but they did not condescend to speak to us, or betray much curiosity in our presence to know who or what we were. My dog Mike, one of those who made the Purus journey, had a dispute with one of the fazenda dogs, which were as discourteous as their master, and I had some difficulty in preventing him from being shot by the irate señor. Altogether we felt so uncomfortable

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here that, at an early hour next day, we resumed our journey, making for Pernatingas, which we were informed was only seven leagues distant, and the road was pointed out to us. Such a road! George facetiously borrowed my magnifying glass to find it. There was, indeed, some sort of a track, but we soon ceased to take the trouble to find it; the fazendas, which we began now to pass pretty frequently, being the best guide to the general direction we were to maintain. At none of these fazendas could we obtain bread; I and George being the only sufferers from lack of this necessary of life, for George had got so used to English ways and English feeding that he could no longer relish the style of living of South Americans. He was proud to be thought an Englishman, and used to lie terribly concerning his nationality, declaring that he was born at St. Martinos, London; that his father was a Milord Naddles, fidalgo at Windsor Castle. Where he got this farrago of nonsense I know not; but probably some of his former forecastle mates were responsible for it. But I utterly failed to keep my dignity of outward appearance when a priest at Diamantino, whose suspicions Master George had aroused, came to ask me confidentially if London was in Windsor Castle? The gross ignorance of the people of this country is deplorable: one scarcely ever meets an educated gentleman; an educated lady—never.

What "a league" in this part of Brazil means I do not know. It appears to resemble the Scotch "mile and a bittock." That day and the next we must have journeyed thirty miles, but still Pernatingas was five or six leagues distant! At some of the farms we received tolerable treatment, and were permitted to lodge in one of the outhouses, and, on one occasion, even to sleep on the verandah of the house. But this great privilege we were soon ungrateful enough to despise, for outhouses and grand houses alike swarmed with vermin to an extent I have never seen in any other country. South America

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does not contain many mammals, especially large ones, but it is the home of the biggest serpents, the biggest rogues, the biggest spiders, the biggest beetles, and the biggest *bugs* in all creation. I declare the bed-bugs of this region were as big and round as threepenny pieces; but that is nothing to what I afterwards met with. There were also other sorts of vermin, and I am not sure that the minute jigger was not the most tormenting of them all. Nowhere were we kindly treated; and in the whole course of my wanderings never have I been told in such superlatively polite language to go to the devil. "What do you think of that?" said George, referring to this polite rudeness. "I would rather be told to go damn, like an Englishman."

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CHAPTER VI

THE DISTRICT OF THE SEVEN LAKES

It was not until late on the third day that we reached Pernatingas, and put up at a venta or inn, the best we could find in the place. The miseries of this den were past description, and it was a paradise for ants and vermin. They actually swarmed on the food which was served to us (after waiting four hours for it), and when we pointed out the horrid fact to the host, he smiled blandly and said, "So they are! who could have told it!" I do not like forcible language, but for once I broke down, and to George's intense delight, made a fair blackguard of myself. But mine host never changed that cursed smile of his as he told the señor that "he might go elsewhere as fast as he liked." I began to see how it is these people are so fond of the knife. They are so provokingly, insolently polite that flesh and blood cannot stand it.

This place not suiting my fancy as a halting-place, I determined to push on to Diamantino as fast as possible, thinking that it was a larger and a better town, if town you can call these places. They are rather big villages, though possibly the centres of considerable internal trade. I do not know. My chief anxiety was to get away from them as quickly as possible. The style of the people, and their exceedingly dirty habits and mode of living, were intolerable to me. And, moreover, my being a "heretic," as they chose to call me, made me an object of some suspicion to the chief men of most of the places where I stayed for any time; and, strange as it may

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seem, I believe I only escaped persecution on several occasions through the intervention of priests. These priests I believe to be often terrible rascals, yet they almost invariably acted in a friendly manner to me. Many of the stories that I could tell of these priests are, I fear, too disgusting for publication. I shall confine myself here to remarking that the confessional gives these rascals a power over the minds of the hysterically religious women of this country that they are not slow to use for a vile end. The result is a terrible state of society in many of the outlying districts of Brazil, and murders, the outcome of jealousy, in which priests figure as both perpetrators and victims, are shockingly frequent.

The part of Matto Grosso we were now travelling through is, I believe, the most thickly peopled part of that province, but that is not saying much, for the country is an almost unbroken forest. The towns are small, villages in fact, situated far apart; the so-called roads are only tracks, often scarcely discernible, requiring constant work upon them (which they do not get) to prevent them from being re-overgrown by the rank herbage; and the plantations seem to be the only inducement the people have to remain in this isolated region. As far as I could judge (I have no special knowledge of such matters), the ground seemed to be admirably suited to the growth of both coffee and cotton, and the plantations had all the appearance to the eye of being in a highly flourishing condition. But if the proprietors are making big fortunes, one would not guess it from the style in which they live, though there is a certain rude profusion among them. If they are of hospitable disposition, they never displayed it towards me, though it is true I never put myself in their way, or gave myself much opportunity of judging how they lived among themselves. They seemed to me to be a selfish and dishonourable set of men, with gambling and the

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pursuit of each other's wives as the chief object of their lives, and I am sorry to add that I saw but little to admire in the ladies. They certainly put no great value on their virtue; but, on the other hand, I doubt if they ever had the chance of joining themselves legitimately to the men they loved. I mean that in the matter of marriage they were simply bought and sold, and they are generally married at a shockingly early age, girls of fourteen, and even thirteen, and I have heard of children of twelve, being dragged to the altar. It would be sacrilege to call such a crime marriage. As a consequence of these early matches a fearful number of girls die in child-birth, while the mature women, even those as young as twenty years, have a coarse and flabby look, worn-out in fact, and a really pretty woman is a rarity in this country. Worse still, these child-wives evince a shocking propensity to seek for lovers; and it not infrequently happens that the knife-murders which ensue are between rival lovers, the husband having no particular interest in the affair, his love for his wife, if he ever had any, being transferred to some other woman. It seemed to be a rule that as the women increased in age they became more anxious to secure the attention of admirers, and as they lose their attractions jealousy becomes more and more prevalent among them, until it culminates in shocking crimes among the women themselves. Some of the most cold-blooded and atrocious murders I heard of in the country were perpetrated by jealous women, sometimes on the persons of rivals, sometimes on faithless lovers. A great many of the murders are never brought home to the criminal, and in some of the remote districts no trouble is taken about these crimes, and no attempt made to punish their perpetrators.

During our journey to Diamantino, we passed a considerable stretch of cultivated ground; but except where there were plantations none of the timber had

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been cleared. Farms, or fazendas, were dotted about the country; but there were no cattle-raisers or arable farmers in this district so far as I could see; and so far from being able to purchase mules to replace those I had lost, I was offered a big price for those I had remaining. Ox-carts were the usual mode of conveyance and travelling; and the labour was performed by negroes. There was great trouble prevailing over the labour question. The emancipation law had given great offence to the hidalgos of this region, and was undoubtedly one of the chief disturbing factors which brought about the revolution. I am sure that the law was to a great extent set at defiance in this district. Many of the negroes, though nominally free, were forced to work; and we saw several gangs of German emigrants and other foreigners, who had been seduced out here, and were in a deplorable plight, having no choice but to do slave's work at hack pay or starve. I suspect that some of these people were no better off than the black slaves, and were subjected to violence for resisting the demands of their tyrannical masters. I was myself asked if my black was my slave, and if I would sell him. This, it may be remembered, was some fourteen years after the passing of the Emancipation Act (which occurred, I believe, in 1871), which made it illegal to purchase slaves, made all children of slaves born thereafter free, and gave every slave the right to purchase his freedom. When I mentioned this fact, the would-be purchaser of Pedro merely replied, "But who knows? I will take the risk." I think this remark speaks for itself.

At Diamantino I first hired a house near the town; but subsequently I moved some six miles to the westward, and erected a house of my own in the woods near a charming stream of running water. The land was the property of a Portuguese planter in the neighbourhood; but he permitted me to occupy some thirty acres, English measurement, for a very trifling rent, with permission

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to fell such timber as I wanted for building or fuel. As a matter of fact, he was so pleased with the cottage I built, that he fore-went his rent on condition of my leaving it intact. My two Indians left me here, not being able to brook a settled life for even a few weeks; and Pedro, the negro, accepted work on the plantation, still living with me, however, and doing odd jobs in his leisure time, of which he had a fair share; for overwork is not the rule in this land, and even the slaves are permitted to observe the saints' days. I and George made long excursions into the country in every direction, sometimes being absent from home for a week or ten days, sleeping on the ground, and living in the forest as best we could. My companion had got by this time to quite enjoy this manner of living, and content with the small wage I could afford to give him, he would never leave me while I remained in South America, though many good offers were made him. He said he had never had a happier existence, and conscious of his weakness, knew he should drink himself to death if he went back to his old haunts. I am glad he was content to keep away from the town, for, to tell the truth, I did not feel over safe in its immediate vicinity. A lady asked me one day why I did not go to mass and to confess. Unthinkingly I gave a rather irreverent reply, or at least she thought so, whereupon she said, that no woman would marry a heretic. I replied that I had not asked any woman to marry me; that there were heretic women as well as men, and that, in any case, I thought I could survive the blow of a refusal. This answer gave her great offence, and she told George he ought not to remain with such a profane master. Subsequently other women spoke to George on the same subject, and a priest came to see him. This incident was the chief cause of my removing from the town, as stated above. In the remote districts of this country, if not always in the larger towns, Protestants are looked upon with

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much dislike and suspicion, and openly spoken of as heretics.

The country immediately to the north of Diamantino is hilly. The range of hills is known as the Sierra Paricis; but the people hereabouts call it the Sierra Sete Lagoas, or the Seven Lakes Hills. The hills are not of great elevation; the highest of them, perhaps, rise seven to nine hundred or a thousand feet high. They are mostly covered with timber, and there are few rugged or abrupt points. Some of the narrow valleys amongst them were completely choked with a dense growth of bamboo grass, amongst which that generally scarce snake, the cooanacooki, or bushmaster, as they call it in Guiana, was unpleasantly numerous. This is the most terrible of all serpents, for not only is it highly venomous, but it grows to the length of at least fourteen feet, and is most aggressive. Serpents, as a rule, avoid man, and upon his approach glide silently away. Not so the irate cooanacooki, which will go out of its way to attack man, and, needless to say, a venomous snake of his size is no despicable enemy. It is held in far greater dread by both Brazilians and Indians than the jaguar, puma, or any other dangerous creature of the forests. Its habits are quite different from those of the anaconda and the boa. In the first place, it eschews marshes, and is found in the dryest parts of the forest, generally lying hid in thick jungle, though it ascends trees in search of prey. It kills its victims with a bite, and not by constriction, and its poison is terribly potent; and this is one of the few snakes for whose venom there seems to be absolutely no antidote. A man who has the misfortune to be bitten by this serpent seldom lives longer than twenty minutes. The whole of the blood is turned to a frightful corruption. It is a very beautiful snake, but must be seen alive to realise the full beauty of its colouring. It is a sort of living rainbow, every colour being beautifully shown with superb iridescence, as it

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glides and shimmers in the sunlight. Although it is a large snake it seems to capture very small prey. The smaller forest animals and birds form the chief part of its prey, and occasionally it surprises a monkey in the trees, as also sloths; and one was seen to swallow a porcupine, rather a prickly tit-bit one would think, but down it went, like the rest of its prey, without difficulty; for this snake swallows its prey much more easily than anacondas and boas, and, what is more, never seems to become lethargic after a meal as those serpents do. It is an exceedingly active snake, which makes it so much the more dangerous; and nothing I did in this region brought me more into favour with the people than the service I did them in destroying these creatures in great numbers.

The Seven Lakes, after which the Sierra is popularly named, are some thirty to thirty-five miles from Diamantino, according to my calculation. They are said to be the source of the river Paraguay, which is one of the largest rivers of South America, second only to the Amazon and the Orinoko, but it is matter for much doubt which is the actual Paraguay stream. The country hereabout is cut into a perfect network of water-courses, and the ground is very marshy, so much so that anybody with less experience of Matto Grosso marshes than I had by this time acquired, would probably have been much more struck by its flooded state than I was. To get at the lakes from Diamantino, we had to turn and twist and retrace our steps to such an extent that it was impossible to more than conjecture their distance in a straight line from that town. We crossed more than forty rivulets and smaller streams, and were buried to the shoulders in the morasses more than once before we reached them, and ran innumerable narrow escapes from the snakes which swarmed at certain spots. There were also great numbers of caymans; but in this district we were glad that they seemed to have that "wholesome

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dread of man" which is the usual effect on the lower creation of a taste of his power. For not only were Indians tolerably numerous about here, but the district is a favourite one with the white hunters. We were two days in reaching the lakes though we had horses part of the way, which were lent us at the fazenda, I having been tempted into selling my mules. The route was a tolerably level one, though most of the streams had cut deeply into the ground, many of them flowing through valleys which were overgrown with jungle, where palm trees of several noble species were a prominent feature. On the hills were many fine timber trees, and others of particular interest to be noticed presently.

The Seven Lakes rather deserve the name of ponds, and at the time of our visit there were more than seven of them. Like all the lakes I saw in this part of the country, they had the appearance of owing their origin to the flooding of the country; and I should think that after much rain, or, at all events, in unusually wet seasons, they form but one body of water, merged in the general inundation of the country. Actually, the seven lakes seem to be water collected in the bottom of deep valleys, where it lies in too great depth to be evaporated annually by the heat of the sun, as most of the surface water is. There are one or two fazendas near the lakes, and what passes for a hamlet on the shores of one; and there seems to have been temporary dwellings erected here also, probably by Brazilian families who come here for their holidays. There were also a few Indians encamped near the water, and some of them were engaged in fishing, using for the purpose a kind of frail canoe, called in Guiana a woodskin, the only sort of boat I have ever seen the Indians of the northern part of South America use, and the method of constructing which I am pretty certain they have learned from the whites; for it is only the so-called civilised Indians that use it, and it looks suspiciously like a rough imitation of the bark canoes

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ONE OF THE SEVEN LAKES—SOURCE OF THE PARAGUAY.

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of the Red Indians. Into one of these woodskins I trusted myself, though they are such frail things that it is dangerous to sneeze in one, the slightest bob of your head or body being sufficient to upset it, and went out to the middle of the largest lake, which might have been a mile across but was of much greater length. They are all of this shape, long and narrow, following the course of the valleys; indeed a traveller, coming suddenly on one about its middle, would probably think that he had struck upon a river. One of them, though it seemed to be about ten miles long, was only some four hundred yards broad. They all contained a great many fish, and the one I particularly explored had a great depth of water in most parts—as much as a hundred and thirty feet in the middle—but with a very uneven bottom. They abounded in water-fowl, ducks and the giant jabiru-stork. These were rather shy, evidence that they are frequently fired at. There were some men here who evidently made a profession of fowling, but whether for the purpose of selling the birds, or securing their skins and feathers, I did not ascertain. Of the fish in these waters the largest seemed to be a kind of carp; but there was also a perch of a dull golden colour with reddish brown markings, running to three or four pounds' weight. The flavour of all was muddy and insipid, but the people hereabout consider them to be excellent food.

The majority, if not all of these lakes, give birth to streams running southwards, and I also found streams bursting in beautiful springs from the hills. The ground between the lakes was marshy, with large pools, having islands in them, which made it difficult to decide how many lakes there really are. Many of these pools, no doubt, occasionally dry up. All the people of the neighbourhood who knew anything about it declared that the number of permanent lakes was seven. To the northward and westward there was a sharp rise of the ground, covered in that direction with virgin forest, which had clearly never yet

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heard the ring of the axe. As far as I moved in that direction I saw no signs of inhabitants, either Portuguese or Indians, and the country is certainly not permanently inhabited, though both whites and Indians visit it for hunting purposes. After a distance of some twenty or thirty miles the forest is broken by some small savannahs, with scattered trees and bushes, one of which was about six miles across; and these are favourite spots with the deer, probably because here their enemies, the pumas and jaguars, cannot so easily surprise them as in the forest. The forest is well watered, being intersected by many small streams with steep banks, and some of them almost lost in the thick tangle through which they run.

Toucans were extremely abundant in this region, flying about like flocks of rooks. They seem to be confined to the northern parts of South America, and I never saw any much south of the lower line of Matto Grosso, or about the fifteenth parallel of latitude. They are, therefore, confined well within the tropics. According to my observations there are more than fifty species or well-marked varieties of them scattered about the country. In many parts it is a local bird, appearing to like best the outskirts of forests bordering the savannahs and cultivated patches. It is by no means averse to frequenting trees near houses, at least until it has been much persecuted. It is a difficult bird to shoot, as it flies high, and pitches near the tops of the highest trees; and a remarkable circumstance is that the species, as a rule, are distinguished by the colouring of the bill, and not by that of the feathers or bodily shape. The aracario has a lighter made bill than the toucan proper, but it is enormous enough compared with the size of the bird's body. Though their bills are so disproportionately large, they are remarkably light, and do not offer the least impediment to the movements of the bird, which, in life, has none of that ungainly appearance we note in stuffed specimens and in pictures.

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On the contrary it is a lively and active bird, of noisy and sociable habits, reminding me much of our English rooks, though its breeding habits are very different to those of that bird. The colour is not in the actual substance of the beak, but is occasioned by a sort of epidermis in the hollow of it which shows through the thin, horn-like outer case; and the colour fades very quickly when the bird is dead, and in stuffed specimens must be replaced with paint. It is very rare, therefore, for such specimens to have the true tint of life. The commonest colours of the beak are yellow, red, blue, and green, but there are seldom more than two tints in one beak. The bird is usually black in body-colour, with a variegated breast and tail—scarlet and white, scarlet and green, &c. The attitude and antics of the bird when perched are extremely ludicrous; and it has a habit of turning its head left and right in such a knowing manner, and then throwing its enormous beak in the air with a wide gape, that it is almost impossible to avoid laughing when watching them. The native name of these birds is *toco*, of which, I presume, toucan is a derivative, or corruption rather. The Indians distinguish some of the species: for instance, there is booboora-toco, and the scheero-toco, which is a very small species, and the tinanac-toco; while the araçari seems to be the corruption of another native name.

The commonest of the toucans in this neighbourhood was a large black one, with a white breast and crimson gorget, and crimson about the vent. The beak was parti-coloured crimson and green, and the naked skin of the face bright blue; and the size of the bird was about that of a carrion crow. All the toucans struck me as being, in general appearance (the beak excluded) and habits, a strange combination of the crows and parrots; and it is a curious sight to see a large flock of them sitting on the branches of a tree, jerking their tails, dipping their heads, shivering their wings, and uttering their

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harsh cries. Usually they fly in small flocks, but these flocks sometimes collect together until thousands may be seen congregated together. Such large flocks, however, are now rarely seen near the towns, the birds having been sadly decimated, as they are a delicious article of food. A young toucan is, in my opinion, more choice eating than a well-fed turkey. Thousands are slaughtered, and you may see them exposed for sale in any town in the districts where they are plentiful; and those districts are yearly becoming fewer. Even at the time of which I am writing they were nearly exterminated in many places where they had formerly been abundant.

Regarding their food, they are generally stated in books to be frugivorous. According to my experience, however, they are omnivorous, and, like the ostriches, will devour almost anything that will pass down their gullets. I have seen them devour rats, mice, and small lizards, and I shot one with a young unfledged pigeon in its beak. The bulk of their food is, however, fruit, and especially bananas. They do great mischief in banana plantations, and also to orange and other fruit trees. Oranges, by-the-bye, are rather a choice fruit in Brazil, and not by any means plentiful, which I thought rather strange, as I should have thought many parts of the country admirably suited to their cultivation. The old stories of the toucan throwing the fruit into the air with a jerk of the beak, and then permitting it to drop down the open throat, are pure invention; neither could I discover that there was any truth in the assertion of an old natural history that some kinds of toucans feed largely on pepper, unless capsicum is meant; though, as I have said, they will eat nearly anything that they can swallow. They are affectionate birds among themselves, and frequently caress each other; and when one is shot the flock will hover in the air above for some time, uttering their cries.

Besides tapirs, deer, and most other typical Brazilian

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mammals, monkeys are very abundant in these woods, the species, or varieties, numbering about a dozen. I need not repeat what I have already said concerning the habits of these creatures in other parts, which holds good in this district also; but I was much attracted by the bisca-monkey (*Brachyurus satanas*), which has a large beard, giving it the appearance of an old man, and is a terrible howler. At night it was almost impossible for a light sleeper, like myself, to get necessary rest on account of the abominable howling and screaming of these little pests. And it was not the amount only of the noise that was the disturbing factor. At first I could scarcely be persuaded that the cut-throats were not at work in the woods, the piteous moans being just like those of a man in dire pain and distress, followed every now and then by a prolonged scream. There must be a great number of these monkeys here, though I know that a single monkey can make an astonishing lot of noise, and is often an expert ventriloquist. In this case, however, the noise was heard coming from several directions at the same time. They kept themselves well hid during the day, and all my efforts to capture one or two failed. No contrivance that I could think of was well enough designed to deceive these cunning little fellows; and, of course, any concealed trap that would have been likely to maim them in the capture, as a snap-trap, was not to be thought of. So, for a time, I had to forego my wish to obtain one or two to tame; but, by-and-by, the Indians brought me four which they declared they had trapped at night-time, though I did not clearly understand in what manner the captures had been effected. A suspicious circumstance was that they were all young, and I suspect their mammas had been cruelly slain to obtain possession of them. I took them in hand, and was surprised and delighted at the rapid progress of their education. Of their intelligence and powers of

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acquirement there could be no doubt. One of the four died, being evidently too young to be removed from the mother. The other three lived and prospered, and were numbered among my most affectionate and interesting little pets until I finally left the country. There was not a bisca among them. One was a red-haired howler, the others were black spider-monkeys; and they were most lively, cheerful little animals. They were always full of play, both among themselves and with any person who would join in their fun, and never developed the least spitefulness or mischievous tendency. One of them became a fast friend of the dog Mike, mentioned several times as one of those which were taken in the journey on the Purus. This was a strange circumstance, as Mike was usually very savage with small animals of all kinds, and I often had trouble with him. These monkeys seldom uttered any sound, and the howler never howled during his captivity. One or other would sit for hours on my shoulder with its tail coiled round my neck when I was reading or writing; and sometimes one of the others would seem to grow a little jealous, and endeavour to dislodge it, but without any show of angry temper. Howler and spider-monkeys lived in perfect concord, and seemed to notice no distinction of species.

Near Diamantino I several times came across a bird-eating spider, banded across the legs, similar to that found on the upper Purus, but smaller and of a different shade of colour. The first I saw was carrying a beetle four inches long in its mandibles, yet ran so nimbly that it nearly eluded capture. It stuck to its prey courageously to the last moment. The beetle was not quite dead, but feebly moved its legs when released, and died a couple of hours later, affording a fine specimen for my collection, killed far more neatly and expeditiously than I could have effected it. For I often found great difficulty in killing beetles and moths

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without damaging them, the poison bottles being much too small for large specimens, some of the moths having an expanse of wing of five or six inches.

These large bird-eaters are not numerous anywhere, but they are exceedingly bold and fierce, and marvellously quick in their movements. They have a sort of gnashing or champing motion of the mandibles when disturbed, which seemed to me to be the expression of their anger or temper; and when stopped with a stick, they did not always endeavour to escape, but, I thought, seemed disposed to show fight. None of their victims recover from the effect of a bite, even if immediately rescued; and birds collapse and cease to struggle the instant they are bitten. What effect the poison would have on the human subject I do not know, never having met with a person who had been bitten. The dog Mike would kill them without receiving injury, and I have seen him ferret them out of their lurking-nests, and destroy them. These nests are generally placed under a branch or in a hollow, at some height up a tree, but are also found under roots, and in crevices on the ground. The spider does not spin a web for the capture of its prey, but hunts for and surprises it. I have seen them drop from the height of five or six feet, alighting on small birds beneath them with unerring aim. They often drop from one branch to another; and if they wish to escape, will voluntarily let themselves fall from a considerable height to the ground, and never seem to sustain any injury. Like other spiders, however, they are not tenacious of life, and a very small injury, if on the body, is sufficient to cause death. These spiders could run up a glazed surface, if it sloped to any degree, but the larger bird-eaters found on the Purus could not, and if put into a deep glazed pan could not escape.

There was another spider in this neighbourhood that, though much less in size than the bird-eater, was still large, having a body bigger than a walnut, and a spread of leg of five or six inches. This is a true web-spinner,

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and it is probably its nets that have been described by old travellers as the superlatively strong webs of the bird-capturer; for they are certainly the strongest webs that I have ever found, requiring quite a strong pull to break them down, and clinging round the hand so tenaciously as not to be removed without some little trouble. They were strong enough to support small birds (dead birds) which I placed in them to tempt the spiders, but these the spiders would not touch. The creature came from its lurking-hole, disentangled the bird, and let it drop. It, however, greedily seized upon pieces of fresh meat, and sucked every drop of blood from them, leaving a bleached pellet, not a fourth size of the original piece. The webs, I should say, were closely woven, like those of the house-spider. The prey of this species seemed to be large butterflies, and other flying insects. It was afraid of a scorpion which I dropped into its net, but the latter was unable to extricate itself, and the spider ultimately, keeping at a safe distance, cut it free. I have seen much smaller spiders attack and overcome scorpions. It is a mistake to suppose that all spiders are afraid to attack dangerous insects, such as wasps, hornets, &c., and arachnidæ. The spiders which prey on such creatures well know how to seize them without incurring the danger of being stung.

There is also a large kind of geometrical spider in these woods. It is of a dull grey colour, spotted with brown, and has the same habit of violently shaking its web when disturbed that may be seen in the English garden-spider.

Among four-footed animals, one of the most numerous was the paca, or labba, as it is called here. It is a kind of cavy—a large guinea-pig, in fact—about the size of a hare, but standing high on its legs. The colour of its fur is dark brown, with four rows of large white spots on either side. It is considered the best-flavoured animal of its genus, and is much sought after in consequence. The

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flesh is very different from that of the acouri, a similar animal, which is lean and dry, while the labba is juicy and fat. The animal burrows in banks, under roots, &c., but as the burrows are never deep it is easily ferreted out. Its habits are nocturnal, but it can easily be found during the day, as a tuft of burning grass thrust into its hole will cause it to bolt; and shooting them is very similar sport to rabbit-shooting.

Both the two-toed and the three-toed sloth are found here, though they both so much resemble a cluster of dead, dried-up twigs in the trees, that they are not easily discovered, except by experienced eyes. I do not know that I have anything to add to the exhaustive information that has already been given to the public by innumerable naturalists and travellers; but I can fully confirm their accounts of the wonderful adaptability of the animal to its natural haunts, and there never was a greater misnomer than to call it a sloth. I would defy the most nimble climber to catch one in its tree, even though it could not pass out of that tree into another. On the ground, where it seldom voluntarily comes, it is a helpless creature. Aloft it will travel from tree to tree through the forest, so fast that not even the Indians can keep up with it for any distance. It cannot be shot, for even if killed it continues to hang to its branch, at all events for many hours. Small shot will not penetrate its thick fur, unless fired close to it; and it is so tenacious of life that it usually lives some hours after receiving a bullet through the heart. The poisoned arrows of the Guiana Indians kill it quicker; but as it does not readily drop, they seldom shoot at it. The instinct, or intelligence, the sloth displays in passing through the forests is the most wonderful point in its history. He invariably takes a bee-line for the best and easiest course, and never makes the mistake of passing to a part of the tree where he cannot without fail pass to another, and that in a forest so dense that it seems impossible that any animal can see

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the direction it should take. They are not gregarious, and it is rare to find two on the same tree; yet if one is found, it is certain that there will be several others at no great distance off. The female carries her young one about with her like a monkey, clinging to her breast; and it may be taken as assured that she never has more than one at a birth.

A naturalist might pitch his tent here, and find creatures enough to keep him employed for years. To give the reader some notion of the abundance of animal life in these forests I will just state that within a radius of about thirty miles around Diamantino I found about a hundred and fifty species (or varieties) of mammals, fifteen hundred birds, nearly two hundred reptiles, and myriads of insects and the lower forms of life. The botanist, too, would be in clover. Tree and plant life of marvellous forms abound, but of these my notice must be cursory. The difficulty is to give a descriptive list of them without making the book read like a catalogue, but the most striking must be noticed. Everywhere in Brazilian forests the orchids are among the most striking objects of the floral world, but to give an idea of their beauty and splendid colouring, resort must be had to coloured plates, and even then but a faint idea of their magnificent appearance in their native sites would be given. Some, however, of the most beautiful are found in forests so gloomy that they often escape notice, and it is surprising that they flourish where they get so little light.

Passing over many fine forest trees the scientific names of which I am unacquainted with, and which were remarkable for their bright brilliant blossoms and wide-spreading limbs, I may describe the *palo de vaca*, or cow-tree, as an object of special interest. There are clearly several varieties of this tree in South America, and I have reason to think it is also found in some parts of Central America, though I did not myself see it there.

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Here I met with specimens that seemed to be as much as sixty feet high. Many certainly grew to at least forty feet. It is a fairly graceful tree to look at, with somewhat angular, drooping branches, and moderately sized oval leaves. The fruit resembles a large green plum, the size of an apricot, and when over-ripe has a purplish tinge. It is not eatable, being simply the fleshy covering of two nuts the size of ordinary hedge-nuts. In fact, the tree struck me much as being similar in this and some other respects to the walnut. But the extraordinary fact concerning this tree is that its sap is a milk having all the properties of the finest cow's milk. It is highly nutritious, and will mix with water, hot or cold, and never curdles in coffee, cocoa, or tea. It keeps good for a week, even in this climate, and has much the taste of cow's milk in which cinnamon has been steeped. It is rather thicker than ordinary milk, having the feel in the mouth of liquid gum. If left standing for a time a thick, unctuous cream arises, which, when dry, has the consistence of wax. I have drunk large quantities of it, both as it came from the tree, and also mixed with tea, cocoa, and whisky, with all of which it combines better than cow's milk; and I can say that it is not only exceedingly sustaining, but has not the slightest deleterious quality. When I could get it I always chose it in preference to cow's milk. It is obtained either by wounding the bark of the trunk, or breaking the smaller branches. It runs freely, and several quarts can be obtained from a single tree in the course of a few hours. Unless the tree is much broken or cut it does not seem to suffer much from the loss of its sap. The fruit grows in clusters of five or six, and the largest leaves I could find were about seven inches in length, the bulk of those on a tree being about five inches. The tree is not very abundant here, and although I have seen odd ones on fazendas and in gardens, it does not seem to be cultivated. Children seek for and eat the nuts, and I have heard, in other parts of Brazil,

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that the fruit is eatable and of good flavour. If so, it is of a different kind to that of the trees here.

In the marshy parts of the forest grew the mora, one of the giant timber-trees of Brazil. Mora timber is a very hard wood. It is a wide-spreading, noble-looking tree of great height, and at one season of the year the foliage is coloured light brown and red, gradually growing to a dark green. It produces an edible nut much sought after by monkeys and many other animals of the forest, as well as by men. They are always to be obtained in the markets of the towns at the proper season of the year. Farther north I saw these trees in far greater profusion than they grow here, though certainly not finer specimens. They are only found in marshy situations or along the watercourses, often growing actually in the water, as does also a very handsome shrub, bearing huge clusters of scarlet and white blossoms, affording a magnificent sight where many acres of marsh are covered with it.

Other forest trees of great size were conspicuous for the beauty of their masses of scarlet and white and yellow blossoms. Imagine a tree nearly twice the size of the largest chestnut in the celebrated "walk" at Hampton Court, and that tree so thickly clothed with huge bunches of white flowers that the foliage was almost completely hid, and you *may* have some faint notion of the scenes to be witnessed here. Some of these trees gave forth a perfume, which, though sweet enough, was of such an intense nature as to be almost overpowering. The beauty of the landscape was greatly added to by the numerous graceful palms and bamboos; but of these I cannot pretend to give a description.

Generally speaking, the forests of the interior are not so impenetrable as those along the courses of the great rivers and in the extensive flat marsh regions. This is partly owing to the less prevalence of creeping and trailing plants and underwood, and partly because the trees

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do not always grow so closely together; but there are spots, even on the hills, which cannot be penetrated until a passage has been cut. One of the greatest obstructions is occasioned by the number of fallen trees, lying in all directions and in every possible position. These are the victims of old age, having run out their little course, but more frequently owe their fall to crowding out by their fellows, or to tornadoes. Great numbers of the trees die because they have not room to grow. The average height of the trees in the forests is quite a hundred feet, which is more than double the average height of European forests, and of Asiatic forests too, if my information is correct. But individual trees grow to double this height; and there are trees, as I have already several times mentioned, that attain to a height of three hundred feet. Birds in their topmost branches cannot be shot—the distance is far too great. Even some of the palms exceed a hundred feet in height. One which I had an opportunity of measuring after it was felled was a hundred and thirty-five feet long, in addition to two or three feet of stump left standing in the ground. Yet none of the trees are remarkable for diameter of trunk. In this respect I think they could be easily beaten by some of our English oaks.

Of the fruits and nuts produced in this district there seems to be no end. Some of them, as the guava and the banana, are well known in Europe, but the vast majority I never saw or heard of until I came here. They feed myriads of birds and animals, but their superabundance causes many of them to be neglected by man. Some of the nuts grow in hard round cases as big as your head, resembling a cannon-ball. They sometimes burst with a loud and startling report. There is also a hard, round, black palm nut which the natives cut into curious ornaments, and which is used for many useful purposes.

The papaw is a tree renowned in story and in song,

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and may be seen growing here, though I have seen it flourishing in greater luxuriance elsewhere. It is a singular, palm-like plant, with its fruit growing in a cluster in the heart, and you may often see it growing in the gardens of the people about here with the capsicum-pepper plant trained over it, which has a very pleasing effect. The juice of the fruit is a remarkable solvent, and will render the hardest leather soft and pliable as kid. Both Indians and Portuguese use the fruit, made into a kind of sauce, with any food that is hard of digestion. It is also a local remedy for several kinds of diseases. By-the-bye, several kinds of birds, including the toucan, eat great quantities of capsicums, but I have never seen any kind of mammal touch them, though they are sometimes infested with a grub which bores into the pods. In the forest I found a small tree bearing a pod like the capsicum, but much larger. It was hot and acrid to the taste, and of a very different flavour to the capsicum, and I discovered that it was a deadly poison.

Most of the reptiles found here are well known in other parts of the country, yet the species differed slightly in colour and sometimes in form, being, I think, local varieties. There was an iguana, about two feet in length, which I should think had been very common at one time, judging from the numbers I found when I moved far off from the settlement, that was much sought after by the people for food, certain men spending much of their time looking for it. The well-to-do planters paid a good price for it, amounting to about ten shillings of our currency; and as ten shillings here was a small fortune, there was a strong inducement to every lazy fellow in the district to spend the whole week in looking for a single iguana. The consequence was that they were nearly exterminated in the neighbourhood of the towns and villages. I am not surprised that these reptiles were greatly esteemed as food. I became so

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fond of them myself, and of other game not procurable in Europe, that for a long time after my return to this country I felt the deprivation of it much.

Of the smaller lizards, the most remarkable was a very long, slim species, of a changeable green colour, with long, slender limbs, the toes broadened into a kind of tubercle or disc. On the throat of the males there was a sac of a bright orange colour. The females had the patch of orange colour, but much duller in hue, and no sac. I have seen a very similar lizard, but of smaller size, in the Southern States, where it is abundant enough. Here it frequently enters houses and runs about the walls; and some which I kept confined became tamer than any other lizards I ever had. They got to know my voice or whistle, and would run up my breast and round my shoulders, and permit me to handle them without showing any signs of fear. They required but little food, but would take an insect from my fingers at almost any time. These lizards did not seem to sleep much. They were always active and lively, day and night.

A very scarce lizard that I sometimes found in the forest, always on trees, was about eighteen inches in length, having a fin-like crest or ridge along the back. This lizard would not live in captivity.

Among the monkeys were several species of those pretty little creatures, the marmosets, and a small monkey, not unlike an opossum at first sight. It was of a dull brownish colour, with a nearly black mark down the back, and this mark was carried up over the head and down the middle of the forehead. A dark-brown mark on either side met on the top of the head, making a sort of a bird's-claw pattern over the forehead. The tail is rather bushy, and not prehensile, and the animal is nocturnal in its habits. They come forth from their hiding-places early in the evening, and remain out until late in the morning. They seem to feed entirely on insects, grubs, and spiders. I have seen them devouring

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large spiders, which I knew to be poisonous, as well as centipedes and scorpions. They are continually searching the crevices in the trees for the latter, which they seize by the tail in such a way that they cannot sting. The boys about here catch the scorpions in exactly the same way, for the pleasure of seeing them fight together—a sport the young rascals, negro, Indian, and Portuguese alike, much delight in. The monkey alluded to seems to be of a very spiteful and mischievous nature. I often saw them catch small birds on the wing as they flew past, and, after plucking out the feathers, and tearing or biting them, let them drop; and they quarrel much with the other monkeys, and fight, and notwithstanding their inferior size often prove the victors, there being fatalities, perhaps, on both sides. They go in troops of eighty or a hundred, and if they find they are not strong enough to drive the other monkeys from their neighbourhood, they themselves forsake the contended-for spot, and choose some other for their habitation.

The black spider-monkey is by far the most numerous, as well as the liveliest monkey in these parts; but there are other species of spiders and howlers here. Some of them are animals of considerable size, with strongly-made limbs, and possessed of great agility. They literally fly about the trees, and from tree to tree; and, like the striped monkey described above, not only catch flies, &c., on the wing, but birds also. I have seen a spider-monkey take a flying, but descending, leap of at least thirty or forty feet, capture a flying bird in mid-air, and alight with unerring precision and perfect ease on the bough below. They kill the birds in mere wantonness, since they always let them drop. I have never seen a monkey attempt to eat a bird. They sometimes pull the feathers out, sometimes tear the birds asunder, and sometimes let them go again. In other respects the American monkeys are not usually mischievous. All monkeys eat birds' eggs when they find them; and most species, if not all, are fond of an occa-

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sional insect, and especially of beetles. I have seen the brown howler seize one of the large bird-eating spiders, and, after pulling off all the legs, eat the body. There are certain foods that monkeys are passionately fond of, and if you place a bowl of milk under the trees where they are, they will come down and drink it when you are out of sight, but they will not enter a trap to get at it. The flesh of all sorts of monkeys is eaten by both Indians and Portuguese in this country, and I have seen the carcasses exposed for sale in the towns. The flesh is dry, and, like that of many other South American animals, almost destitute of fat. In the neighbourhood of Diamantino there appears to be no fewer than eight species of spider-monkeys, besides other monkeys, chiefly marmosets.

Of smaller animals, there were rats and mice enough to be a great nuisance, and these were eagerly pursued in my garden by a brownish snake, about two or three feet in length, but sometimes larger, and which in consequence of its services in this respect was gratefully protected by everybody. In the forests there was a kind of polecat, or weasel, and also coatis, an animal allied to the raccoon. It is a long-snouted beast, of a brown colour, with a ringed tail similar to that of a raccoon, to which animal its habits are closely assimilated. That is, it is arboreal, haunting the hollows of trees, in which it breeds, and is almost omnivorous, eggs and birds perhaps forming the chief part of its food, as with so many of the smaller carnivorous animals. It will also devour small snakes, and shows great skill and pluck in attacking those which are venomous.

I saw also in the woods an animal which resembled a wild cat, but it was very scarce, and unfortunately I did not succeed in securing a specimen for closer examination; neither could I gather any information about it from the people, except that it was rarely seen. They agreed with me that it looked like a wild cat. If such

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was the case, its colour, which is a light ochre inclining to brown, is, I believe, unique among wild cats. On at least three occasions I have seen cats in South American woods which were clearly domestic cats which had taken to a wild life and began to breed and multiply, but whether among themselves or with the indigenous cats I could not decide. One such instance occurred here. I found a cat with five kittens in a hollow tree. The mother was undoubtedly a domestic animal which had taken to the woods, but the kittens, in my opinion, bore strong marks of a wild paternity. It is a matter of some interest, and I greatly regret that I have not been able to find decisive evidence that wild and tame cats breed together. "Tame" is not a very correct appellative to apply to any cat; they all wander much, and retain in no small measure their savage nature. This was exemplified on the occasion of finding the cats alluded to. The mother spat at me when I touched her kittens, flew up to within a few feet of me, and followed a long distance, crying angrily. Three of the kittens were killed by the dogs before they became full-grown, but the other two I reared. They became as much attached to me and others who petted them as cats usually do; but it was the opinion of most persons who saw them that there was a wild strain in their breed. All five kittens were "tabbies" like the mother, but were very decidedly marked with transverse blackish stripes and a few scattered spots; the whole litter being remarkably alike.

As an instance of how the animals of one region may become the inhabitants of another, I may mention that in some of the coast towns of South America I have seen the common mouse and the common brown rats of Europe, which must have been brought thither among the cargoes of ships. The rats and mice of South America, though often superficially resembling those of Europe, are really different, and belong to other genera.

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One of the most remarkable of those in this neighbourhood resembled outwardly the water-rat of our ditches, and also in its general habits. It was of a brownish grey colour, with some white patches about it. I have seen it feeding on fresh-water mussels and on crayfish; and these and slugs and worms seem to be its chief food. This vole—or vole-like rat—fights fiercely when captured. I saw one compel a small snake which had seized it to release it. It does not seem to be gregarious, though as many as half-a-dozen are sometimes seen together, and it is not over-plentiful; but there is a mouse with a rather short tail, that swarms about the tiny runnels, and occasionally assembles in armies numbering tens of thousands, in this respect resembling certain field-mice and lemmings of Europe. The object of these assemblages I could not discover, but it does not seem to be for the purpose of migrating. As in Europe, these periodical gatherings attract great numbers of birds and small animals of prey, and small snakes innumerable, and the storks come after the latter also, so that there is quite a warfare of extermination amongst these various creatures.

I have mentioned the paca, but I believe that I have forgotten the agouti, an animal of the same class, and one of the commonest in this district, being found almost everywhere in small parties. It stands much higher on its legs than the paca, and runs and walks with a peculiar trotting-like gait. It is about the size of a hare, but has the habits of a rabbit, living in burrows in the forest; and like that animal being fond of gathering together on the outskirts of cleared spaces. Unlike rabbits, the sexes keep apart except during the breeding season, and the bucks seem to have more difficulty in winning the favour of the does than most animals. The young are brought rorth in the burrows, and each female usually has two only, though often only a single young one. Occasionally there are three, but I have never

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noticed a greater number, which makes me think they must breed oftener than once a year. It is difficult otherwise to account for their abundance, for they have many enemies, of whom man is the most formidable, the flesh of the agouti being sought after for food, though it is of no great account according to my judgment. Several of the inhabitants of Diamantino had tame agoutis which followed them about like dogs, and I had some trouble owing to my notorious dog Mike killing one of these. I had to apologise and "square" the owner, and Mike's life was more than once threatened, and I think attempted, for he was well peppered with small shot. I could not break the rascal of a habit of suddenly grabbing any small animal that came in his way; but as he was one of those which proved so useful during the journey on the Purus I would not get rid of him. Strange to say, he was hard and fast friends with one of my monkeys, which used to sleep cuddled up against him, and often ride about on his back, a liberty he would allow only to this particular monkey.

Several times I was in some danger from the peccaries. These animals often wandered about in the midst of droves of agoutis, and mixed up with them, neither animal taking any notice of the other. Herds of peccaries are usually much scattered when feeding, but rush together at the slightest sound of danger from any one of their number. On one occasion I got among the tail end of a herd without attracting attention, and upon discovering my position I hastily got behind a tree to wait for the danger to pass. Possibly I made some slight noise; at all events, one of the peccaries, that one which was nearest to me, suddenly stood stock still, just as I have seen domestic hogs do when they are "looking at the wind," as the country people say. Then he suddenly dashed off just as you may see young pigs do, uttering a few low grunts. By the rushing sound in the forest

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I could tell that the whole herd was joining in the flight. But the danger on such occasions is that the peccaries are just as likely to rush towards you as away from you, in which case they are sure to attack, and escape is only possible by climbing a tree. For even if you succeed in shooting a dozen of them there will still be four or five times that number to deal with, and they will fight to the last peccary. Indeed the chances are twenty to one, at least, that you will be borne down in the first rush, and ripped up before you have time to call for help. The peccary is a justly dreaded animal.

It is possible that it was not through hearing and winding me that these peccaries made such a precipitate flight; for about ten minutes afterwards I met what I took to be a small jaguar of unusual appearance. It passed very quickly, but I shot it and then discovered it to be an ocelot in fine condition of coat. This splendid animal is rare in this district. Some of the local hunters told me that they had passed whole months in the forest without seeing the traces of one. Pumas and jaguars are said to drive them from their neighbourhood; nevertheless they are found in the same forests with those animals. The ocelot is a very bloodthirsty creature, and in some villages I heard that one had sometimes taken up its abode at hand, and committed great ravages amongst such domestic animals as poultry, dogs, and pigs, until it was destroyed, which was sometimes a work of time and difficulty on account of the extreme cunning of the animal. The specimen I shot was a yard long in the body, with a remarkably short tail, scarcely exceeding a foot in length, but covered throughout with long hair, so that it appeared to be quite bushy. It was beautifully marked with black spots, arranged in clusters on a pale ground.

The proper habitat of the ocelot is the densest forests, and it very rarely leaves the trees. The hunters say that the only occasions when it does so is when in

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pursuit of peccaries, or to visit pig-sties, or fowl-houses. This may account for my specimen being on the ground, and for the sudden retreat of the peccaries. It is credited with a strong liking for the flesh of pigs and fowls; but my belief is that the bulk of its prey is surprised in the trees, and consists of arboreal animals and birds. The assertions of the people of some parts that it itself often falls a victim to the anaconda and the bushmaster, and is destroyed by the jaguar and the puma, is open to doubt. I failed to find evidence in support of these assertions.

Two small cats, the first of which is tolerably abundant close to the town, are known to the people as the little jaguar and the little leopard. Skins which I brought away enable me to say that they are the animals known to naturalists as the margay and the jaguarondi. Both these animals I obtained alive, but they were such ferocious little brutes, and made such noise by crying and struggling for freedom day and night that they could not be endured in the house.

It is like dropping from the sublime to the ridiculous, but I must here notice the fleas of this place. The first house that we hired was alive with them. I never witnessed such a sight. They actually hung on the walls in clusters, and when George and I entered the place they flew in a cloud on our faces and hands and began to bite, being evidently wild with hunger. We had to flee before them, and it was not until the walls and floors had been drenched with bucketfuls of scalding water that the place was at all habitable. Then we tried the fumes of sulphur and charcoal; but we did not succeed in doing more than reducing thousands to hundreds. The dogs were driven distracted by these tiny tormentors, which occupied every outhouse as well as the dwelling itself.

And here we made an intimate acquaintance with that hateful little wretch, the jigger. This is a kind of

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flea which burrows under the toe-nails and the skin of the sole of the foot and there breeds, forming a sackful of eggs the size of a pea. If these are not turned out in time the consequences may be very serious, careless negroes and others sometimes losing their toes, and becoming cripples for life.

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CHAPTER VII

THE POISONED ARROW

THERE is nothing more of interest to record concerning my sojourn in the Diamantino district of Matto Grosso; and though I went from thence farther south, I think it best in this chapter to return, in point of date, to Guiana, as there are one or two matters of interest connected with that country that I wish to write of. The chief of those matters concerns the blow-pipe and wourali poison of the Indians. My interest in this subject was aroused by reading the account of Charles Waterton, the naturalist, of his attempt to discover the materials of which the celebrated and marvellous poison is composed.

The poison, and weapon with which it is used, are known only to a few tribes (or rather, I think, divisions of one great tribe) in the northern part of South America. Among the savage tribes on the river Purus, and several other of the great rivers of Brazil, and among the Indians of the regions southern and central, I never saw any weapon of this kind, nor bow and poisoned arrows, except in one solitary instance in which the Indian had obtained his blow-pipe from a man of a Guiana tribe. The blow-pipe was, I believe, found among several savage nations in various parts of the world; and was, and I think still is, in use among the Japanese peasantry for shooting small birds; but none of these people used poisoned arrows. The blow-pipe of the Indians of Guiana is a wonderfully ingenious and skilfully made weapon; and, indeed, the mechanical skill of these people in several ways is such that in my opinion it is a great

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error to call them savages. None but highly intelligent men could construct such a weapon as the blow-pipe, and the applied wourali poison must have been the outcome of great research and much thought, unless, indeed, its acting ingredient is what I half suspect it to be—snake-poison.

The blow-pipe is made of a reed or a young palm-tree trunk. If made of the latter it is usually shorter than when formed of a reed. It varies in length from six to twelve feet; those constructed of reeds being the longest. It is perfectly straight, and great precautions are used to keep it so. It is never placed leaning against a wall or tree, but always laid down horizontally; and it is wonderfully light, and easily handled. If made of a reed, the bore of the pipe is not the third of an inch in diameter, and sometimes scarcely a fourth of an inch; and those made of the stem of a species of palm, though somewhat larger, are yet very small. The arrows are made of the rib of a palm-leaf, and are about eight inches long, straight, hard and brittle, and almost as heavy as metal; yet they are so small in diameter that a dozen of them bound together do not form a bundle so thick as the stem of a clay tobacco-pipe. A fine groove is formed for about half the length towards the point (which is as sharp as that of a needle) to retain the poison, and sometimes about an inch from the point the arrow is cut half through, so that if a monkey, or other animal, when struck, attempts to draw out the arrow, it breaks off and remains rankling in the wound. The base of the arrow is wrapped round with raw cotton, so that it fits the tube of the pipe sufficiently close to be air-tight, yet loosely enough to traverse it easily. There are two sights—fore and back—affixed to the blow-pipe by means of wax. The fore sight is generally the sharp tooth of a fish; the back sight is formed by the curved incisor teeth of a rodent, placed parallel on the reed so that the eye can glance between them. The weight of the whole

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weapon never exceeds two or three pounds; it is often under two pounds weight, so that it can be handled as easily as a walking-stick. In taking aim the pipe is held by both hands close to the mouth, and not with one arm stretched along the barrel as when aiming with a gun; and the shooter regulates his aim by bending his body forwards, backwards, left, or right as the case may be, and not by shifting the position of the pipe. The base of the pipe is made bell-shaped that the breath may be collected, and with one powerful puff the Indian shooter will project the arrow a distance of two hundred yards, so that he can shoot animals when they are far out of reach of a shot-gun. I have sent the arrow a hundred and twenty yards myself; but I could never attain to any skill as a marksman with the blow-pipe. The Indians shoot wonderfully close with it, but they do not make the marvellous practice that some writers have reported. They are tolerably sure of monkeys and birds the size of a pigeon at any range within a hundred and forty or fifty yards. As to the effect of the shot, we will speak of that when we have considered the nature of the wourali poison.

Waterton gives a list of the ingredients of this celebrated poison, together with a good description of the process of its manufacture. I do not intend, therefore, to dwell on this part of the subject. The poison is not easy to procure. It is a brown, saponaceous substance, just the colour and consistence of soft soap, for which it might easily be mistaken, but it has a strong, aromatic odour which I cannot compare with that of any substance known to me. This odour does not arise from the active ingredients in the composition, for it was present in some worthless preparations which were sold to me by dishonest Indians. If the poison is not kept in a dry place it becomes mouldy; but this does not at all affect the strength of the genuine article. The ingredients of which it is composed are, according

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to Waterton, the wourali vine (ascertained to be the *Strychnos toxifera* of botanists), a plant from which the deadly strychnine can be extracted. I found that the leaves, and particularly the roots of this plant, taken internally were a deadly poison, killing animals of size in from half-an-hour to two hours. Strange to say, however, there were some animals on which it had no effect. A goat ate a large handful of the leaves, and was none the worse for its meal, and a three-toed sloth would consume as much of the vine as I cared to give it. I never saw this vine growing anywhere but in certain parts of Guiana, and it is nowhere plentiful. It is of some size, but creeps over the ground and rocks rather than runs up trees, &c. It bears a round fruit which is not at all unlike that of the *palo de vaca*, or cow-tree described in the last chapter. It contains an evil-smelling, evil-tasting pulp full of small seeds. The flower of the plant I did not see. Now, considering its name (wourali vine), one would think that this was the most active principle in the composed poison, but it is not. The juice injected into the blood had no effect on goats, pigs, cats, dogs, agoutis, or any animal of about this size; but one or two mice and voles died a considerable time (five hours to a couple of days) after the injection.

Next in importance to the wourali vine is another creeping plant. This vine bears clusters of blue flowers, followed by pea-like pods containing seed. All parts of this plant are poisonous, but the roots and seeds are the most virulent. A piece of the root, bruised with a stone and placed in a river, will intoxicate all the fish for twenty yards around, and cause them to float helpless on the surface of the water. This seems to be the principal effect of the plant. It does not readily cause the death of animals if taken internally; and the injected sap has no effect at all. The plant is common enough in Guiana, and some parts of Northern Brazil, and is much used by the Indians for poisoning the fish. There are

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two or three other plants which, I was assured by the pee-a-men, enter into the composition of the poison. None of them are poisonous, or, at all events, actively so. One is the bulb of a lily, though I did not see the plant itself. There is also another root which seems to be the source of the saponaceous matter in the poison, and is probably only used to give it consistence. A few charms (they are clearly nothing more), such as the bones of certain reptiles, and capsicum pods, are added—the latter probably to cause the poison to keep better. All these materials are boiled together for a prolonged time, said by different pee-a-men to be seven, eight, ten, and twelve hours; and one man said that he simmered his slowly for a period of two days; but the actual process of preparation I was never permitted to see. The poison is always prepared by the pee-a-men, and by them only, and they make a mighty secret of the process, though some of them professed to sell it to me. The pee-a-men are the medicine-men, witch-doctors, or priests, of the Indians, and are a precious set of rogues and humbugs. They use innumerable incantations and pretended mysteries, not only in the preparation of the wourali poison, but in all their acts and ceremonies. Like most of their class, however, they are ready to sell themselves body and soul for their price. I am therefore surprised that I could not persuade any of them to permit me to witness the process of wourali-making. If there is, indeed, any real secret in the process, it is well kept. A special hut is always erected in which to make the poison. This hut is blessed, or cursed, with many elaborate but silly ceremonies before the actual process commences; and the final act in the manufacture of the poison is to burn this hut utterly to ashes. The poor Indians who use this poison pay through the nose for it, as the saying is, and members of tribes in whose districts it cannot be made on account of the non-production of the materials, come from long distances to purchase it. Those pee-a-men

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who are noted as the most skilful producers of it therefore grow fat on the best of the land. Thus they have an interest in keeping their secret.

Having procured all the materials which I was assured were used in the production of the poison, I set to work to try to make some. I followed most carefully the instructions I had received from a number of pee-a-men, omitting, of course, the superstitious rites recommended. And I may say that as the instructions alluded to were tolerably consistent from a number of independent sources, I cannot but think that I had learned the method of preparing the poison, but that the *principal ingredient was lacking*. The mixture I prepared was, to all outward appearances, wourali poison, but it would not act. It is singular that though at least two of the ingredients in the composition were deadly poisons if used internally when freshly gathered, yet my mixture, after being slowly boiled between seven and eight hours, was, like the true wourali, innocuous if swallowed. I tried many experiments with my preparation, but it would not destroy even the smallest animals. I became convinced that the whole secret had not been imparted to me, and that the acting ingredient had been omitted in the list of materials furnished to me. I accused several pee-a-men of having deceived me in this respect, but they all assured me that my failure was owing to my not having strictly adhered to the rites they had counselled. On this point, ridiculous as it was to my thinking, they, of course, had me. My only resource was to offer a very large reward to several of these cunning rogues in the hope that they would be tempted to reveal the secret, but it was no use. There either was no such secret as I supposed, or the pee-a-men whom I consulted were really not acquainted with it; or, which I think is the most likely supposition, were afraid from superstitious fears to make a stranger acquainted with it. It is beyond all doubt that none of the Indians, otherwise than these rascally medicine-men, are acquainted

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with the method of preparing the poison, and none of the common Indians dare inquire into it; they are horrified at the bare mention of such a thing. Whether I succeeded in discovering the real secret of the terrible potency of the wourali poison I must leave to the judgment of the reader. I have little or no doubt about it.

The discovery was accidental, and occurred after I had made many experiments with the poison. A boy was brought to me who had been bitten by a bushmaster snake. He was in a state of collapse, having been bitten nearly two hours before. He appeared to be asleep and could not be aroused. If his eyelids were pulled open they immediately closed again, but slowly, as those of a corpse sometimes will. The eye appeared fixed, and was not affected by the near approach of a lighted candle. The breathing was scarcely perceptible, and the heart beat fitfully, sometimes seeming to remain motionless for three, four, and even five minutes, so that I several times thought the boy had died, and was surprised when the heart resumed beating. The boy was pricked with a pin and other severe measures were resorted to, but unfortunately I could not work my electric battery owing to want of acid, and in about an hour and a half after I first saw him the boy died. The only thing that had the slightest effect on him was whisky, which I poured down his throat, and which caused the heart to resume fluttering. He had been bitten too long before he was brought to me to give the remedies I tried a chance. Very quickly after death the body became a terrible mass of corruption—the effect of the bushmaster's poison, for this result is not noticeable with the venom of any other poisonous snake with which I am acquainted.

Now the symptoms noticed in this boy are precisely those which take place in all animals as the result of the injection of the wourali poison, with the exception of the rapid corruption. For the wourali does not affect the flesh of animals killed with it, which remains good and

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wholesome for a day at least, longer than which time meat cannot be kept good in this climate. The shocking death of this poor lad caused me much thought, and it dawned upon my mind that snake-poison might very probably be the really fatal element in the wourali. I determined to make a fresh series of experiments. First I studied the effects of animal poison on the systems of animals. Snake-poison is no poison to the snake itself. At least I never found it to be so, though, of course, I could not experiment with such large and deadly serpents as the bushmaster. A small rattlesnake compelled to bite itself suffered no inconvenience from the injury, nor did several other varieties of small venomous snake. But harmless snakes bitten by venomous ones usually died as quickly as other small animals under like circumstances as they did when injected with wourali poison; but the *wourali had no effect on venomous snakes of any size.* This, standing alone, is a remarkable fact, and strong evidence that my surmise is well founded.

It is only some animals of comparatively low organisation that are furnished with poison glands, but in all cases the poison seems to work in like manner; that is, if it is strong enough to have fatal effects. The victim becomes rapidly comatose, and oblivious not only of surrounding objects but of physical pain also, and if the remedies resorted to fail, death generally ensues in from twenty minutes to several hours; or, on rare occasions, the sufferer may linger for a day or two. The object of the venom is undoubtedly to enable the animal furnished with it to overcome the struggles of its prey, most venomous creatures being small and weak, and unprovided with limbs strong enough to aid them in securing their victims. Snakes, arachnidæ, and a few fishes, and one lizard, seem to be the only creatures provided with regular poison glands. The two latter may be disregarded here, as it is doubtful whether their venom, though dangerous, is absolutely fatal to animals in general. But

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with regard to the bird-eating spider, to cite one instance, a small bird poisoned by it displays precisely similar symptoms to those of a fowl under the influence of wourali—that is, it is comatose, insensible to pain and efforts to attract its attention, and speedily dies. There is, therefore, no difference in the working and ultimate effects of snake, arachnidæ, or wourali poison. The bird-eater is easily provoked to attack any enemy, though I never came across a human being who had been bitten by one. The effect of this creature's bite on man would probably be similar to that of hornets, scorpions, &c., but more severe, and would be likely to be fatal in the case of weak or unhealthful persons.

My first proceeding was to secure a quantity of the venom of different poisonous snakes. In some instances this was obtained by pressure from living snakes, and in others from recently killed specimens. From a large bushmaster, twelve feet long, which I shot, I obtained nearly a half-ounce phialful. This venom was a limpid, colourless fluid, with a slight odour and taste, and somewhat oleaginous feel between the fingers. Neither smell nor taste can be described, being peculiar to the poison, but both were sickly. The venom floated on the surface of both water and spirit with a distinctly oily appearance. It is perfectly harmless (as are all snake poisons) if swallowed by any animal, but injected into the blood it produced exactly the same symptoms, followed by death, as it does when it flows direct from the fangs of the living animal, and that more than a year after its extraction from the poison gland. Ultimately it stank fearfully, but this in no wise weakened its virulence.

The poisons of many other snakes were obtained at various times and in various places, including those of the rattlesnake and the whip-snake. These poisons, though deadly enough, do not corrupt the blood like that of the bushmaster, and they all seemed to be of the same nature—that is, a light oily fluid which would float

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readily on the surface of other fluids. All kept well for a lengthened period, and never lost any of their original deadly power. Some that was preserved in alcohol was as efficacious ten years after as at the moment of extraction from the animal's glands. With the exception of that of the bushmaster, only one of these venoms had any odour or taste. That of a kind of coral snake had a slight musky smell and taste.

Arrows of the blow-pipe were dipped in all these venoms and shot at various animals and birds. If the poison was moist at the time of shooting, it was in every case fatal; but if it had been suffered to dry on the arrow it was useless, and had no effect on the animal. Mixed with the wourali composition I had made, it had *just the effect of the genuine wourali*—another remarkable fact, and one that speaks for itself. But what is still more remarkable is that when birds or animals were injected with snake-venom they usually ran or flew a short distance before standing still and becoming comatose; but when poisoned with the wourali mixture they were generally immediately paralysed. I employed an Indian to shoot for me as I could only hit a very large mark with the blow-pipe arrow myself, and birds and monkeys which he shot at the tops of tall trees often never moved after being struck. This Indian was so excellent a marksman that he could hit an orange once in three shots at the distance of a hundred paces.

It will now be seen that though I could not make wourali poison from the materials it is said to be composed of, yet the addition of serpent's venom to my mixture at once converted it into a substance having all the attributes of the Indian-made article. And it was good and efficacious as ever, many years after its composition. I have, therefore, strong grounds for believing that it is snake-poison that is the active principle in the wourali paste. I leave it to others to decide whether the evidence I have adduced justifies that belief.

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A few words on the effect of wourali will probably be of interest to most persons. When an animal, great or small, is struck by a poisoned arrow, if the missile is immediately drawn out it will not die. And if an animal under the influence of the poison is treated as for a snake-bite it will recover. I am convinced that a human being could be easily saved if wounded by a wourali arrow, unless the remedies were not applied until the very last stage of the symptoms had set in, when it would probably be found impossible to save the sufferer. Waterton mentions the case of an Indian whose arrow being fired vertically fell back upon him and wounded him. The man at once laid down his blow-pipe, took off his arrow-case, and lay down to die, expiring shortly after. Waterton was misled. This story is not true. An Indian would at once pull out the arrow, suck the wound, and have little fear that he would not recover, though they are all very cautious in handling this deadly weapon. The poison must have time to act, and it is never immediately fatal. It is for this reason that the arrows are notched, otherwise monkeys would nearly always escape, as they pull out the arrows. These break at the notch, leaving the poisoned point in the wound. I do not care to see monkeys destroyed, but as they are fed on largely by all classes in South America I have seen many of them shot with the blow-pipe. As soon as they feel the prick of the arrow, which is not large and heavy enough to inflict a serious wound, they pull it out and run a little, but seldom go farther than three or four trees. Often they do not leave the tree in which they were struck. They stop and turn round restlessly several times; then they rarely move from the branch till they drop. The animal seems heavy with sleep; he half loses his balance several times, recovers himself, and nods again. Often he falls a distance of some yards, and (especially if it is a spider-monkey) seizes the branches as he descends. Then in a few moments he falls head-

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long to the ground, and if he is not killed by the shock he never lives longer than another minute or two.

I got the Indian to shoot me a maroudi (a bird like a wild turkey, but smaller and black in colour) which was perched in a tree. It looked about when the arrow struck it, but did not attempt to fly away. In less than a minute it shook its feathers repeatedly and spread out the wings like a bird sunning itself. Then it became anxious about the feathers of its tail, turning several times to preen them. Afterwards it squatted on the branch, dozing; recovered itself a time or two, to again shake its feathers like a bird dusting itself, and then came down with a crash. It was quite dead. I dined off this bird; the flesh was perfectly good and free from taint. As these two wild creatures died, so all others die when they are wounded with the wourali arrow.

The death of domestic creatures of larger size than monkeys and maroudis is similar, but is usually longer in taking place after the wound is inflicted, especially if the poison is not very strong. For there is a difference in this respect; that of some districts being much more potent than that obtained in others. I suspect this to depend on the species of snake which furnishes the venom. The larger the animal, in any case, the longer time is required for the poison to take effect. In shooting such animals as tapirs, the Indians use larger arrows, that the quantity of the poison entering the blood may be greater, but these large and strong animals always run a considerable distance before the wourali takes effect, and must be followed by the hunter. The tapir, in particular, is so timid that the slight prick of the arrow is quite sufficient to alarm it.

The largest animal on which I tried the effect of the poison was a worn-out old horse. I had one of the small arrows shot into his shoulder. He took no more notice of the slight hurt than to shiver the muscles, as horses and cattle do when they want to dislodge troublesome

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flies, and went on eating his fodder. The poison showed no effect for five minutes; then the horse neighed several times in succession, turning his head right and left as if looking for something. For another five minutes he was very restless, left off eating, and was evidently suffering from much anxiety. Then he began to go to sleep; fell on his knees several times; rose again, and finally fell on his side. A nervous twitching of the legs took place; but he never again opened his eyes. There was the same irregular beating of the heart which I noticed in the boy who was bitten by the bushmaster. That organ frequently stopped altogether for several minutes at a time, then recommenced beating violently. Once or twice the animal gave a sobbing sort of sigh, but he died so quietly that I did not perceive the precise moment of his ceasing to breathe. He was dead thirty-seven minutes after the injection of the poison.

Not one of the least surprising circumstances connected with the wourali was the ease with which it killed sloths, animals so tenacious of life that I have known one of them to give signs of being still alive after its brains had been knocked out. The wourali, however, will kill them in ten minutes; and they seldom move after the arrow has penetrated. Several of the three-toed species were procured for me by the Indians; and I may add a little to my account of this animal given in the last chapter. Only recently I was reading a description of the three-toed sloth by Mr. Bates, the Amazonian naturalist and traveller, and discovered that his account of the animal does not quite agree with mine. He says that both the Indians and Portuguese say that it is a lazy animal, and rightly named the sloth. My acquaintance with the animal is, however, so great that I do not hesitate to speak with decision. It is a nocturnal animal, and only those who have watched it much at night-time can be assured of its real habits. During the day it is nearly always asleep; but, unlike most nocturnal animals, it does

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not hide away to take its rest. Bringing all four feet quite close together on the same branch, and hanging back downwards, it buries the face in the hair of the chest and, wrapping the posterior part upwards over the nose, thus reposes, rolled into a rough ball. No doubt observers seeing the animal spend the whole day in this position, and noticing, moreover, that while it is feeding its movements are slow and deliberate, have jumped to the conclusion that it is a slothful animal. But it should be seen when it is alarmed and desirous of escaping, or pursuing its lady-love, and then we should hear less about its slothfulness. It feeds slowly and with great deliberateness, I admit; but the sloth is not the only gentleman of independent means who takes his time over his dinner. He only hurries when there is occasion for haste, and even then his movements are so carefully timed, and have such an appearance of deliberateness, that it is not until you attempt to keep pace with him that you discover how fast he is really moving. His love-making is a time of great trouble to him, for his lady is exceedingly coy until she is captured. She flees from him from tree to tree, and travels at a great pace. When her lord at length overtakes her, he clings to her as tenaciously as he does to the bough of a tree; but thereafter they dwell amicably together under the same foliage until her solitary cub is born. The opinion of the Portuguese, as natural history observers, is not worth a flip. As to the Indians, they are as well aware as I am that the sloth is, on occasions at least, an active animal enough. Mr. Bates does not appear to have studied the habits of these animals at night. He makes one of the most extraordinary assertions concerning the three-toed sloth that I have read in a modern work on natural history—to wit, that he saw one swim across a river five hundred yards wide. Mr. Bates is a trained naturalist, and it must be clearly understood that I am not in any degree contradicting him, but I certainly think he was mistaken. Extraordinary things are possible,

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I know; but I should have thought that of all living animals the three-toed sloth was the least likely to be able to swim, and I know that they evince a great dread of water, and will actually cry if an attempt be made to put them in it. Speaking of sloths crying, I thought this an old wife's story of the ancient naturalists until I had experience of it; but it is truly a fact that the sloth often weeps copiously. When pursuing his female he cries bitterly until he has captured her, uttering a sort of blowing sob the meanwhile, just such a sound as the great land tortoises give vent to under similar circumstances. The word "huff," strongly aspirated, gives a good imitation of this sound. Sloths are usually silent animals; but they can utter a very sharp scream, and do, when they are angry or in fear, and they almost always weep when captured. They never bite or attempt to defend themselves, and, notwithstanding that the contrary has been frequently asserted, they occasionally voluntarily come to the ground, though I have not been able to discover for what purpose, unless it is, as seems probable, to travel to some tree that they cannot reach from the branches of the one they are on. They never entirely strip the leaves from one tree before going to another, or even perceptibly thin them: this is another of the old fables concerning this animal. I believe that the sloth sometimes lets itself fall from a tree to escape the attacks of anacondas and jaguars. I have some evidence of this, but it is not conclusive, as it is not often that I have been able to surprise those animals in the very act of attacking their prey. It is certain, however, that the sloth does sometimes drop from the tree, and, though it must sometimes fall a considerable distance, seems always to escape injury. When newly captured the fur of sloths is often covered with a greenish powder, which is minute algæ, or fungi, clinging to the fur. It has been supposed that this fungus grows naturally on the animal's hair; I, however, think it only lodges there through the animal rubbing it

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off the trunks of the trees as it brushes under them. It quickly disappears when the animal is kept a prisoner.

There is a very curious brown mark on the back of the male of the three-toed sloth which looks like a burn or singe mark, and is said by some naturalists to be occasioned by the animal abrading the long hair against the tree-trunks; but it is the male only which has this mark, and therefore it is a sexual distinction. The greatest peculiarity in this sloth is that it has *nine vertebræ* in the neck, all other mammals (sloths excepted), including man, being invariably furnished with seven, neither more nor less. The presence of these two additional vertebræ seem to be to enable the animal to twist round its neck, so that when hanging back downwards it can hold up its head and look straight forward like an animal standing upright. If the neck of any other animal were twisted into this position it would inevitably be broken. Yet, stranger still, there is a species of sloth which has but *six* vertebræ in the neck; while the two-toed sloth, which differs in habits from the three-toed, has the usual seven. In the forests of which I have last written there appears to be five species or distinct varieties of sloth, but none of these are abundant. None of them, in my experience, ever have more than a single young one at a birth. The native Indians have a fearfully cruel custom of hacking off the claws of these animals to prevent their escape when they do not wish to kill them at the time of capture. The animal then can neither crawl nor climb.

To return to the account of the wourali poison. It is not now so much used by the Indians as in former days, as these men prefer firearms when they can procure them, and the difficulty of obtaining the genuine article is consequently much increased. Some which I procured from a tribe on the upper Essequibo was little worth; but some which I obtained from the Acoway Indians, not twenty miles farther on, was the strongest

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and most reliable that ever came into my possession, so much uncertainty is there in the preparation of it. It seems a very singular fact that there is no record of the Indians using this poison in war. They never appear to poison the common arrows. As a matter of fact I never saw the bow and arrows in use among any of the tribes; but I was assured that they do use it on occasions, and I was shown some war-arrows tipped with barbed fish-bones—very ugly-looking weapons to behold, but they were not poisoned. The Indians of this part of South America, however, are not warlike, and on the pampas the spear is certainly (where they have not fire-arms) the most common weapon. The wourali poison is quite unknown south of the Equator; indeed, I doubt if it were ever much used beyond the confines of Guiana proper, which is a district of about six hundred thousand square miles. It is certain that either the material for preparing it or the method of manufacture are unknown outside a very narrow region in that country.

There is no doubt, I think, but that the Indians of Guiana are of the same stock as the Red Men of the North, but I have sometimes thought that the natives of other parts, and particularly on the Purus, are of a different race. In this supposition I am probably wrong. I have nothing much to add to the exhaustive descriptions of these savage peoples which have long since appeared in the works of other travellers. Where they have come much under the influence of their white conquerors they are in a deplorable condition. The vices and unprincipled conduct of their masters have had a most pernicious effect upon them, and they are, in the neighbourhood of the settlements at least, distinguished for little but drunkenness, sloth, dirt, and vice. In British Guiana, where they are protected by the Government, they are in a markedly higher state, both morally and physically, than in any other South American country; but there are but few of them living a strictly

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civilised life. They prefer to live, in the forests, the lives of hunters and fishermen; and, as a rule, they wander about absolutely naked, the women only wearing, suspended round the waist, a small apron which is seldom as much as six inches square. These women are, for the most part, exceedingly ugly, with large, irregular features, and hair like a horse's mane; but they idolise white men, and the half-breeds of the second and third generations are often surpassingly charming creatures. They are the most beautiful women I have seen in South America, and make the most devoted wives in the world. If they are forsaken by their white lovers they almost invariably die of broken hearts. Fortunately I think there are but few men here who are scoundrels enough to cause this cruel catastrophe; and somehow even the Indian women get such a hold of the hearts of their masters (I am sorry I cannot say husbands), that they are rarely forsaken. They follow the men about like faithful dogs, and watch the eye that they may anticipate the least wish of the master they adore. Among the English of Guiana I heard of but very few instances of these women being forsaken. Personally I owe a deep debt of gratitude to many of the Indians; I having been frequently greatly helped by both men and women in times of sickness and distress. Of course there are other tales about them; but I should like to hear the Indian side of those tales. Some travellers seem to have an unfortunate tendency to fall foul of the aborigines of the countries they search, and this arises, I think, through their forgetting to display that respect which is due to the original possessors of the soil in every land; and it should be remembered that a man may have a heart and a sense of right and wrong though he does not eat with a knife and fork, and wear a coat and trousers.

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CHAPTER VIII

THE ECUADOR ANDES

FROM Guiana to Ecuador is a long skip; but we must make it, for it would be tedious to record in what fashion, or by what stages, I reached this part of the great southern continent. This region is one of the most interesting portions of the mountain system of South America, and not only contains some of the most strikingly beautiful scenes in the entire land, but also some of its highest summits, to say nothing of such remarkable objects of interest as Cotopaxi and Chimborazo. Between the Pacific coast and the Andes there is much hilly country. I should call it mountainous were it not for the mighty ranges that form its background, and which dwarf all minor elevations into molehills. The Andes, forming the heart of this country, rise somewhat abruptly on the westward face; at least so it seemed to me at the point from which I approached them. They may be described as a mighty wall 14,000 or 15,000 feet high. There is a similar wall on the eastward side. Between these walls there is a valley, formed by a sort of looping of the mountains, which is 300 miles long, and from 8 to 18 wide. The bottom of that valley is *ten thousand feet above the sea-level*, yet it is enclosed on both sides by what, in most countries, would be described as stupendous ranges. Although it is situated directly under the Equator, the average heat of an English summer is never felt; and the climate scarcely varies throughout the year. I should think that it is the most equable known in any part of the world. The

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nights are always chilly, and sometimes bitterly cold. Visitors here should be provided with a good stock of warm clothing, a precaution they are very likely to neglect; for even during the daytime winter apparel is often desirable, if not actually necessary; the cold is felt the more readily as doubtless you have had previous experience of the tropical heat of the plains.

From any of the high points the sight is one that will never be forgotten. I have never been in any other of the highest ranges of the world, therefore cannot compare the Andes to them; but, from what I have read, I should think that such sights as may be witnessed here are without a parallel on the globe's surface. The nearest approach to the wonders of this place that I have beheld were in the Sierra Nevada, and they were so grand that I am always thinking of them, though many years have elapsed since I witnessed them; but even the Sierra Nevada seems dwarfed when compared with some parts of these Ecuador Andes. The best maps of the country that I could procure bristle with points that are marked at 20,000, or nearly 20,000, feet in height; but these maps did not seem to me to have marked down a tithe of the summits that verge on 20,000 feet. The snow-line is certainly here not under 15,000 feet; but from a high point near the middle of the country I counted more than 120 points that were snow-clad: a truly wonderful and never-to-be-forgotten sight.

The atmosphere appears to be generally remarkably clear. At all events it was so during my stay among these interesting mountains; and the appearance of the snow, even on distant rocks, was extremely dazzling. What was still more noticeable, especially as I can find no record of a similar phenomenon in the works of any travellers that I have searched, was that I frequently witnessed a prismatic reflection from the snow, forming

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a sort of rainbow. That the reflection emanated from the snow seems certain, for there was not even a suspicion of rain in the sky. The weather was beautifully fine and bright; and the phenomenon was only noticed when we were at great elevations (above the snow-line), and emanated from points below us. Sometimes the bow was formed as it were on the face of a mountain; but more frequently arched some deep gulf between two mighty rocks. Sometimes the appearance was much above the snow-line, when it was inexpressibly beautiful; sometimes deep down in the valleys, when it shone but faintly. But for the fact that the appearance often shone from near the summits of mountains, I should have been inclined to think that waterfalls had something to do with the phenomenon.

The general scenery, in spite of an awful grandeur, was peculiar. Owing to the great elevation of the bottom of the valley enclosed by ridges, rather than ranges, of mountains, the high points viewed from any spot within the bounds of the valley do not appear to be of the great elevation they really are, and which they show themselves to be when viewed either from the coast lands or the immense flat plains of the Amazon eastward. Yet the deep, gloomy grandeur of narrow valleys is not to be exceeded, if equalled, by anything of the kind on the American Continent. It is impossible to enter these deeply cut valleys, or to look down into them from the heights above, without experiencing a shudder of fearsome awe. The grandeur of these mighty rocks in many spots verges on the awful. In places, if you have the courage to do it, you may lie prone and peer over the edge of precipices, where there is nothing to save you, in the event of accident, from a sheer fall of *three-quarters of a mile*. I do not know if the reader can realise what it means to look down a perpendicular wall of 4000 feet; a precipice so steep, remember, that not even a chamois could climb twenty

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feet up or down it. There are but few persons who can do it and keep a clear head.

Of course there is no vegetation on these precipitous sides, except, perhaps, where the seed of some tiny weed has found a half-inch ledge to grow on. The angle of elevation is far too great for any plant larger than an odd blade of grass to find support for its roots; in fact I am in error to speak of angles. The elevation is vertical —absolutely vertical. A mass of rock pushed over the edge of one of these gulfs struck no projection until it was near the bottom of the chasm. The sound of its fall took many seconds to reach our ears, and the noise then seemed as a prolonged reverberation of an explosion—dull and indistinct. Not always, however, was there a sheer descent. Sometimes huge natural buttresses supported these enormous walls of rock, and quite as frequently there were overhanging masses that seemed to project half-way across the cleft; while occasionally these projections reached right across the abyss, forming natural bridges, which, in some cases, were thousands of feet above the bottom of the cleft. These clefts were really enormous cracks in the solid rock, which had fallen apart or been rent asunder in some tremendous earthquake. Projections on one side of the abyss had invariably recesses immediately opposite to them in the opposing wall, and *vice versa*. Looking at these tremendous crevices and terrific rents, it was impossible to doubt that they were the result of fearful convulsions of Nature. Undoubtedly Nature performs many mighty works in a quiet way, without much apparent effort; and there seems to be a growing tendency among geologists to teach and think that great convulsions of the earth's surface have not been so frequent or extensive as was formerly believed. I think that to a great extent these opinions are right. But, on the other hand, I have seen both here and at many other places on the American continent, that there are incontrovertible evidences of

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terrific convulsions, which must not only have been sudden, and of indescribable force, but of very great extent, involving thousands of square miles of territory. In a word, the evidences I have seen of sudden and great alterations of the earth's crust are of such a nature and extent as greatly to strengthen my more than half-formed opinion that this world was formed out of the ruins of a former one. If that Master Mind that all must see and acknowledge, unless they are wilfully blind, took the remains of a destroyed world and put them together to form a new one, the surface of the earth would, in my opinion, present precisely the surface configuration that it actually does. Take a handful of clay and press it in the hands into the form of a ball, and then examine its surface through a magnifying glass, it will present to the eye exactly the same fissures and irregularities on a minute scale that we find on the surface of this globe of ours.

Generally all these great fissures in the mountains of this district are merely cracks on a vast scale. Few of them are water-worn or cut by streams, though many of them have now rivulets running at the bottom of the crevasses; but the water has found its way thither since the formation of the abysses, and was not the original cause of them. These abysses are of very different formation to the cañons of the Rio Colorado, which are undoubtedly cut by natural water-power. As I have said, water has found its way into many of these Ecuadorian abysses, and now runs there in streams of varying size; but many of the largest of them are quite destitute of streams, which are always found in the cañons of the Colorado district. In fact the mountainous system of the southern half of the continent is, on the whole, singularly destitute of water, and the magnificent cascades of the North have no parallel here. What waterfalls there are are few and far between, and rarely to be compared in grandeur to the grand displays that are to be

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seen in such districts as the Yosemite Valley. In both lake and torrent beauties the North is immeasurably in advance of the southern division of America, although the latter more than holds its own in the matter of river-ways.

Neither are these mountains so well clothed with vegetation as the ranges of the Sierra Nevada and Rockies, except on the lower slopes of the outer ranges. Many of the narrow valleys (which I prefer to call fissures, for they were scarcely more than huge cracks in the rocks) were almost destitute of even the humblest of weeds. There were, in some spots I visited, fissures that, though not a hundred feet wide, were a thousand feet deep, and in these the absence of light had possibly as much to do with their barrenness as any other cause. In such places I could not find the meanest weed. In fact the bottom of such passes was practically dark as night. But in some of the wider fissures, especially where a stream ran along the bottom, there was an almost luxuriant vegetable growth, amongst which I noticed many charming flowers, far exceeding in size, shape, and beauty, many that are thought worthy of careful cultivation in Europe. Some of the valleys appear to have formerly had a considerable growth of timber in their depths, but this has been probably destroyed by the inhabitants for fuel. In some obscure spots there are still a considerable number of stunted trees growing, which differ much in kind from those growing in the plains below. I saw no very large ones anywhere. A tree of forty feet in height, and two feet diameter of trunk, is a giant in these elevated regions, and such a tree I only saw growing where men seldom or never visited. In the bottoms of all the valleys there are immense quantities of volcanic débris, as would naturally be the case in a district containing so many large volcanoes as this. Much of this débris had clearly lain here undisturbed for many ages. Some of it was

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piled up in slag-like heaps exceeding a hundred feet in height, and probably containing hundreds of thousands of tons of scoriæ.

I cannot speak with much assurance of the geological formation of these rocks. The composition of the higher summits puzzled me much; but I think that I may safely say that they consist of some sort of fused formation—I mean that the rocks seem to have been melted by fervent heat, and thus chemically changed in nature. They are not lava nor basalt, though I here and there found a singular columnar formation that much reminded me of the latter rock. I can also say certainly that the formation is not granitic. There is very little granite to be found anywhere in these ranges. I only found it in isolated spots near the bases of the mountains. There is slate and quartz in great quantities, and consequently gold, but I could not be sure that the precious metal is present in large quantities. I have had, however, sufficient experience in California to enable me to form some judgment on this matter, and at three or four spots I think a fortune might be made, but not by individuals. A large expenditure of capital would be necessary for machinery, and the item of transport coastwise would be no trifle in this difficult country. Everything would have to be brought to the spot, and by such a route! Nothing could be reckoned on as obtainable in the towns of the country—not even labour, I think, though there is no telling what alteration in the manners and purposes of the people a gold-rush might not bring about. It is impossible to tell, without an assay, whether these quartz rocks are rich or not. My opinion is that in the spots referred to above the gold runs nine to eleven ounces the ton of ore. The placer miner may spare himself the trouble of coming here; there is nothing to be picked up by him, except by one of those wonderful chances that occur once in a lifetime, and which so many placer-hunters have wasted their lives in

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looking for. There does not seem to be any systematic search for the precious metal carried on by the people of the country. It is, however, *there*, to become the future curse or blessing of the country, as chance or some higher power shall decide.

I also soon perceived that there must be coal in this region, and on inquiry found that this was a fact already long known; but what surprised me was, that I found beds of this valuable substance at a height, according to my calculation, of 15,000 feet above the sea-level. Is not this a unique elevation for coal formations? In the neighbourhood of Quito I found a red sandstone formation, which was some 4000 to 6000 feet thick; and this is one of the principal formations of this part of the range; and, if I may venture on a conjecture, I should say that a fused quartz is another extensive formation, if not, indeed, the most extensive.

In a former work ("Forests and Deserts of North America"), which I look upon as the first part of the present book, I made frequent mention of the wonderful coloration of the rocks in the Colorado and Sierra Nevada regions, and said that this phenomenon extended throughout all the American mountain systems, according to my experience. It was not so remarkably evident in Ecuador, as I afterwards found it to be farther north, within the limits of the Granadian Republic; but even here some of the rocks were coloured a deep red or crimson, different in hue to the vermilion rocks of Colorado, but not less striking to view. I cannot say whether this colour is due to the presence of iron, but on a sort of table-land between two valleys I found a remarkable mass of pure native iron, half-embedded in the ground. Once before I met with a similar mass on a plain of moderate elevation, as nearly as it is possible to conjecture in the very centre of the southern continent. On that occasion the iron appeared fused into a sort of filigree work on one side, and was very irregular in shape.

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It lay on the ground as if it had been thrown down in that particular spot. The mass found here in the Andes might have weighed five or six hundredweight. It had several arm-like projections on its surface, but was otherwise a solid lump of apparently pure iron, in no way oxidised by exposure to the weather.

From the coast to the central valley there are but three acknowledged routes within the frontiers of Ecuador, but I think it is probable that there are several more or less dangerous and difficult passes over the mountains, known only to thieves and contrabandistas. There is certainly at least one; for I myself crossed it, under the guidance of three individuals whose character might have been truly judged from their personal appearance. Lest a question may arise as to the justification of my using the services of such men, I may state that I have frequently done so in this and other countries where, in my opinion, the authorities were as great rogues as any in the land. While carefully abstaining, by word or deed, from encouraging the evil courses of this class of men, I have never been able to see a reason against my using their local knowledge, and accompanying them for that purpose. I have often found their help and goodwill of the greatest service to me; and the fact that I was known to have arrived in a district under the protection of such men has served as a kind of passport, or safeguard, ensuring me from robbery, or worse, at the hands of other men of the same class. In a word, these men are the most chivalrous in South America to those who have won their confidence. And I had another and stronger reason for entering the country by the back door, as it were. I was desirous of avoiding interference, or supervision, by the authorities; who, I had reason to know, would not permit me to wander about at the dictates of my own sweet will, which was what I desired. I travelled as a poor man and a wanderer, and as such I determined to accept, for the time being, any associates that chance threw in my way.

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This enabled me to penetrate into places which a rich man, travelling with an organised expedition, would perhaps never have visited at all, or visited at extreme peril to his life. Nor must I forget to acknowledge how much I owed to George, the Venezuelan, who not only acted as interpreter, but, by the character he gave of me, caused me to be everywhere received by Spaniards with the utmost friendliness. These few words of explanation may be of use in enabling the reader to better understand my position, and the circumstances under which I travelled, and how I was enabled, with small means, to penetrate into so many obscure quarters of this great land.

Although this range is so difficult to penetrate, once in the great central valley you can push forward, north or south, with but little obstruction. There are no lateral valleys of importance; and on the east side you can descend with great rapidity to the plains of the Amazon. But there are many small side valleys, mostly at right angles with the great central valley, which is a mountain-surrounded plateau; and nearly all these valleys are of the kind which I have just been describing—vast chasms in the rocks. One of the narrowest which I entered was barely 200 feet wide, with perpendicular, and in places overhanging, rocks on each side, which could not have been less in height than 3000 or 4000 feet. The light in this terrible place was so dim that a watch could not be read, unless it was held close to the eyes; and looking upward but a mere streak of dark blue sky was visible, even this being frequently shut out by overhanging buttresses. There was no motion of the air in this crevasse, and very occasionally a few straws of withered grass could be seen clinging to the face of the rocks many hundreds of feet above us. Under foot was a soft dust, intermingled with masses of scoriæ, that made walking laborious, the feet sinking ankle deep at every step; and I did not perspire so much on any day I spent in

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the country as during this journey. I estimate the length of this crack at about five miles. Near the middle it widened, rather abruptly, to 200 yards; but just beyond the rocks closed together, so that there was scarcely room for us to push through. Here the rocks bulged over frightfully, as if about to cave in and crush us; and the way became a narrow tunnel, dark as a mine. The rocks overhead probably met, leaning together, but it was too dark for us to see this; and it was not until a torch had been lighted that we could proceed. Vast masses of shattered rock showed that falls often occurred here; and the passage was almost blocked by the rubble and masses of scoriæ, much of which was so rotten that it went to dust under our feet; and this dust, which was so fine that it felt soft as feathers, rose in suffocating clouds as we passed through it, having a burnt, sulphurous odour. To all appearance no drop of rain ever reached the bottom of this chasm. Everything was as dry as tinder, and had a scorched look. Nothing of life could be found, though I made diligent search for such. There could not be discovered here so much as an insect of the minutest size, though I afterwards found that a few mice had penetrated about a hundred yards within the entrance or mouth. Apparently they had found no inducement to carry their explorations farther, and indeed it is a marvel how they found a subsistence anywhere in the neighbourhood.

The sensation of being thus closely buried within the bowels of the mountains was oppressive, almost horrifying. I felt as if in a grave or a trap, and in spite of my efforts to shake off all morbid feelings, the idea would continually haunt me: "What if a fall of rock should suddenly take place behind you; you will be buried in a living grave." That such falls did take place was evident, for we had climbed with difficulty over the shattered rock, and the thought was terrifying, and I involuntarily glanced back every now and then in the half-formed fear of witnessing

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such a fall. All this was simply nerves, of course, but the place was really an appalling one.

The rent went quite through the mountain, the opposite opening overlooking the immense plain of the Amazonas. Such a sight! I was rendered speechless, for a more wonderful stretch of territory no human eye ever did, or ever can, overlook. It is impossible to conjecture the distance over which the eye could roam; it would be absolute folly to pretend that words could convey the faintest idea of the wondrous sight. The atmosphere was absolutely clear, so clear that the landscape appeared unnaturally distinct, like the painting on a canvas. Even my companions noticed this, for one of them exclaimed: "How close everything appears." Yet that distant greenish crimson line that bounded the distant horizon was probably hundreds of miles away. For we were certainly at least 15,000 feet above the plain, and that plain was as flat as the floor of a dancing saloon. Looking eastwards, and towards the north-east, there could not be seen the slightest undulation of the ground. It was in all directions an absolutely flat green level; one immense forest without a perceptible break, and appearing as flat as a rolled lawn. There was no "billowy" appearance about this forest; that was, no doubt, on account of our great height above it, which was so great that trifling inequalities could not be discerned. At places great rivers could be seen, and the tortuous courses of others traced by the difference in the coloration of the foliage on their banks. Vast tracts of brilliant light green showed where the ground was an inundated swamp. These were the only natural features discernible, except to the southward, where several spurs of the range shot out eastward, having just the effect of bold headlands on a coast. In a word, the landscape vividly resembled a sea of intensely deep green, ranging from an almost black colour to light blue and crimson purple in the extreme distance. The far distant horizon had a deep

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red colour, the reason for which I could not conjecture. The effect was just that seen in gaudily coloured landscapes sometimes, and was weird and unnatural-looking, insomuch that, as an artist, I should have hesitated to represent it on canvas. It would be a bold painter that would venture to depict such a scene as this, or the remarkable colouring of the rocks in other parts of America. Only those people who had actually visited the scenes would believe that they were correctly represented. I do not wonder that one sees so few views of foreign scenery in the picture-shops of Europe.

Looking downward from the outer opening of this crevasse, the face of the rock appeared to be almost perpendicular. It would have been quite impossible for any creature, other than a bird or a fly, to descend it. There was a passable ridge stretching northward, but it was dangerous, and probably did not afford a way for any great distance. Immediately beneath us, at a depth of about 400 feet, there was a broad ledge on which there were several remarkable stone huts. With great difficulty we descended so far as this ledge, having to use ropes to do so, and from its outer edge overlooked a dizzy precipice, which descended abruptly almost to the level of the first valley below, a distance which could not have been less than 6000 or 7000 feet. A number of condors of the smaller species were hovering about the face of this precipice far below us, and great numbers of a small green and grey pigeon harboured in the rocks. A specimen of these could not be obtained, several that were shot falling down the gulf. The only small birds seen were a species of siskin, which were very numerous. There were creeping insects, grubs, and butterflies here; but the only fly was one having the outward appearance of an ichneumon. A small mouse with a short, tufted tail was the only mammal discovered. This mouse was not of the same species as those haunting the other end of the crevasse.

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The rocks were too steep to sustain much vegetation, and what there was was stunted and starved, though some of the small shrubs bore very beautiful and brightly coloured flowers. Among those recognised were calceolarias, verbenas, and heliotrope. There was also a very beautiful horse-daisy, or marguerite, which was evidently an uncommon flower, as it attracted the attention of my guides. I say guides, but the men who accompanied me on this journey were simply attendants who had never been here before, and the pass was unknown until we explored it. Among the jagged rocks above and below us a few small bushes found a precarious support, and in them the siskins built their nests. Most of them had young birds at this time, and some young were flying feebly about the rocks. The eggs did not seem to me to differ from those of the common siskin found in the north of England, but the bird had the upper feathers of a greenish colour. A kind of creeping ground-ivy covered the face of many of the steepest rocks, and greatly added to the beauty of the scenery by the fantastic loops and trails in which it hung.

The stone huts, or houses, to examine which closely we had risked our necks in descending to this ledge, were of great age, and most certainly the work of the original inhabitants of the land. They were square or oblong in shape, and built of slabs hewn from the rocks. I do not think that any kind of cement had been used to keep the slabs in place, but from great lapse of time they had sunk together so firmly that the joints were hermetically closed. These huts were in every respect precisely similar to those previously discovered and described near the Purus River. Three of them were still perfectly intact, and there were the remains of several others, besides many loose slabs lying about the ground, which may have formerly stood upright, as they appeared to have been broken by the fall. In the huts still standing the entrances were narrow holes, never exceeding thirty inches in height, so that we had to stoop to enter. In

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only one case was there sufficient room inside to permit of our standing upright. This house was divided by stone partitions into four compartments, each about seven feet square and as much in height, and entered by low-pitched holes, like the front entrance. The other two buildings were mere huts, ten feet by six. All had the bare rock for flooring, and there were not any remains of any kind in any of them, neither were they provided with means of admitting the light. There seemed to have been a small village on this ledge, which did not exceed two acres in extent. Near the centre was a barrow, or mound, composed of small slabs and fragments of rock, where probably the dead had been buried; but as it would have taken the whole party of six persons an entire day at least to remove them, we could not, unfortunately, stay to examine it. What puzzled me was to know how the inhabitants could go to and fro from this dwelling. It is only reasonable to suppose that they used the pass through which we had come; in which case this spot was probably chosen for purposes of concealment, for which it was admirably adapted. The narrow part of the pass, too, might have been defended by a dozen determined fellows against a host.

I told George to ask one of our companions if he knew who had erected these huts. The reply was "Who can tell!" When told that they were the work of the Indians, and had probably stood there at least a thousand years, he replied, "Ah, indeed!" These two sentences abundantly reveal the stupid, indifferent, lackadaisical disposition of these lazy people. Nothing arouses their interest except love and revenge, and every man is constantly engaged in the indulgence of one of these two passions to the neglect of every other object. To one-half the questions you may put to them you will get no other answer than "Who knows?" "Who cares?" "Is it so?" and so on; betraying an utter indifference to every object of interest.

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Turning again to the vast plains beneath us, I should not omit to state that signs of human life were not wanting. A thick, grey haze, at an immense distance to the north-east, was said to be occasioned by the smoke of Macas, a town of some size in the Amazonian plains. If so, it must have been at least sixty miles distant. Much nearer, the smoke of several villages was more plainly visible, though the houses themselves were buried in foliage. A great trunk road runs through the province on the eastward plains to the Granadian Republic, and through a pass about thirty miles southward of our present position; but I never visited these eastern plains, the mountains to the northward having a greater attraction for me at this time. I have mentioned that the pass we have just described was about five miles long, but the difficulties of surmounting the rugged masses and débris which block it were sufficiently great to make it a four hours' journey through, each way. From the valley near its head, Cotopaxi and several other active volcanoes are plainly visible, as well as other peaks innumerable. All present the appearance of cones with the tops cut off; in other words, they are flat-topped. All the cones seemed to me to have had a volcanic origin, and those which have the tops snow-covered look just like enormous sugar-loaves. When the weather is clear and bright, the sun causes these snow-clad summits to glitter in a wondrous manner. Words cannot describe the effect. Often I have watched the beautiful sight for hours, unable to drag myself away from contemplating the marvellous effects of sunset amidst these scenes. One can scarcely believe that the sight is of this world. Nothing can exceed the wonderful beauty of the snow when dyed a deep crimson, with streaks of copper-coloured red, by the last rays of the setting sun. The beauty of a bright moonlight night, too, in these regions, cannot be described in language which would be too superlative.

There is excellent pasture in this great central valley,

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and many of the inhabitants own large herds of cattle and sheep, especially the latter. It is said to be no uncommon thing for one proprietor to own a hundred thousand head of sheep; and I heard of one or two who were reputed to be owners of a quarter of a million. Yet the people appear to be miserable creatures, with none of those comforts in their homes which are supposed to be the concomitants of great wealth. With the exception of drunkenness (and even that is far from being unknown), they practise every abominable vice that is known on earth. They are ignorant and superstitious, especially the women, who are completely under the influence of the priesthood. The consequence is that jealous husbands and lovers are continually committing crimes of violence; and the wooden crosses stuck in the ground to denote the spots where murders have been committed are an appalling feature in this country, as they are in Mexico, and some other places in America which were colonised by the Spaniards. These crosses have the initials (seldom the name in full) of the deceased, and the words ".Adios, pobre"—"Good-bye, poor fellow!" cut on them. At least two-thirds of the inhabitants of the country seemed to be either Indians or half-breeds, and the immorality of these people is too shocking to dwell on. They frequently, if not habitually, sell their female children, and I have known little things of eight or nine offered for money. Girls of twelve are frequently legally married, and I strongly suspect infanticide is much practised. The women of pure Spanish blood are kept more secluded, or, rather, more select, and these fall victims, more particularly to the priests; and from what I heard, backed by what I saw, the misdoings of these unfortunate women are often punished by immurement in a convent, where they are more in the power of their seducers than when at liberty; for if the nuns are the vestals they are usually thought to be, I have been much deceived. One of the priests made a

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boast that I cannot repeat, and when I said that, considering their habits, I wondered that the priesthood did not marry, he replied, "We should be fools to bother ourselves with wives when every man's wife is at our command." But the husbands have to be reckoned with sometimes, and it is not an uncommon thing for a priest to be waylaid and murdered; and occasionally the priests are the murderers. Still more frequently the poor women forfeit their lives as the result of their indiscretions. They have no voice in their marriages, and, not unnaturally, rarely have much affection for their husbands. Consequently the gallant lover comes with half his evil work done for him; but, I am sorry to record it, the lady herself too often makes the first advances. As one of them plainly said to me, "We pine for affection and notice, which we do not get from our husbands. Can you be surprised that we favour those who love us?"

All the men carry two or three knives, which here take the place of the Yankee six-shooter. Their method of fighting is to throw the knife. They do not care to close with an opponent if they can avoid it. They often waylay persons, and throw the knife after they have passed, with such force that it passes through the muscles of the back into the heart. In throwing they do not hold the knife by the haft, but take the blade near the point between the finger and thumb, and hurl it with such skill that they repeatedly hit a mark the size of a dollar-piece. They are as expert in parrying as throwing the knife, so that unless they take their enemy unawares, they seldom succeed in impaling him. If it comes to a fight with knives, after attitudinising and feints enough to furnish a whole stageful of dramatic villains, they close, and inflict frightful cuts and stabs. I have seen large numbers of these men with their faces covered with scars as the result of these cowardly affrays. I have known English seamen, however, gives these stabbers a

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thorough hiding with their fists, in spite of the armoury of knives.

As to the general state of the country, a European must travel here with his life in his hand, and it is particularly dangerous to express religious or political opinions. Men are thrown into prison, especially if they have property, without rhyme or reason, and while murders probably number thousands annually, I doubt if a dozen of the murderers are brought to justice. Practically there is no redress for European victims, otherwise "heretics"; and as to appealing to your consul, somehow I have not attained too much respect for my country's consuls abroad. It seems to me that both at home and abroad the foreigner has the first consideration, and I distinctly charge our consuls with being in no hurry to entertain even serious complaints. An Englishman's liberty and life are not now of the same value that they were in the days of the Commonwealth, when the town of an insolent oppressor was knocked about his ears if he did not mind his p's and q's. Moreover, in all American countries, popular sympathies and prejudices have the force of laws. In a country like Ecuador, the law cannot touch a criminal if the populace take his part. It is, therefore, advisable that visitors to this country should walk warily.

Proceeding gradually northward, I found the mountains to increase in elevation, if not in grandeur, while maintaining all the general features I have already described. In many places, however, the rocks were more rugged than any I had previously seen, and some of the higher peaks were as absolutely bare of vegetation as a plank floor. Rock pinnacles were by no means infrequently met with, and these were sometimes locally called needles. They much resembled similar pinnacles which I have seen in the Rockies, and I have strong doubts whether they are the result of what is technically termed "weathering." The weather

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in this region, I should think, could scarcely be responsible for such formations. If it rains here at all it must be at very infrequent intervals, and storms seem to be equally rare. As to the action of frost, the majority of these pinnacles are at elevations where there is about as much likelihood of frost as in June in England. Some of these slender points are of very great height, a hundred feet or more, and seemingly so frail that it is a wonder the sudden rushes of wind which frequently take place in the mountains do not cause their fall. Everywhere in this part of the range were deep valleys, frightful chasms, and precarious roads leading along the edge of precipices, and now and then crossing the gorges by means of trumpery bridges that seemed to have been intended for death-traps, so ill-designed and out of repair were they. Many of these bridges consisted simply of two or three loose poles, and a few decayed cross-pieces, which moved about alarmingly under the pressure of the foot, and threatened to go to pieces at each step. Often we could only cross one at a time, the structure being evidently incapable of sustaining the weight of two persons, and more than once we had, ourselves, to repair the bridge before we could cross at all. But this is a custom of the country. They who use the bridges have not only to repair them, but construct them also in the first place. Our guide gave us no assistance while we were engaged in this work, but sat on a rock smoking vigorously an enormous cigar, and watching us through the smoke. Asked if accidents were frequent at these bridges, he "thought they were."—"Then why not build better bridges?"—"Who would trouble to do that?"—"Would it not be a public benefit?"—"Who could tell!" was the indifferent reply, accompanied by an impatient shrug of the shoulders. The fatalism of these people is as great as that with which the Turks are credited. Has their love of gambling been the father of

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this careless, haphazard state of mind, I wonder? They are the most inveterate gamblers I have ever been amongst, and when I once remarked, while watching some card-players, that I believed that an Ecuadorian would not hesitate to stake his soul on a game of cards, and George translated my remark to a bystander, he coolly remarked "Who knows?"

The scenery among these mountains was often of a thrilling nature. A sudden turn of the road sometimes revealed wonderful sights of deep, distant valleys, and far-reaching plains, and the extent and grandeur of these scenes increased as we approach the Granadian frontier, until we were compelled to take a road running into the heart of the range, where the gloomy nature of the passes and fathomless gulfs was such as to be a severe strain on the mind and nerves. We travelled by routes which were almost unknown, and which, indeed, had never been attempted by any persons but such wild herdsmen as our guides. This part of the country was without fixed inhabitants, for we had now ascended far above the level of the great central valley, and often were plunged in deep passes with high, precipitous sides, and huge masses of overhanging rock, that had a nasty, nodding-to-the-fall sort of look. Here we were so buried among high rocks that the rays of the sun did not reach us sometimes throughout the entire day, and we had but a depressing twilight which was scarcely sufficient to enable us to tell the time by a watch. There being no trees here, such bridges as were necessary were usually constructed of a couple of ropes stretched across a chasm, upon which was spread a rough kind of matting made of pliant brushwood, or a sort of rush. Such bridges swung about fearfully, and cracked under the foot as if about to give way. Often I held my breath while passing such a bridge, momentarily expecting the rotten contrivance to part in the middle. There was plenty of evidence in the skeletons of horses and mules on the rocks below that

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ROPE BRIDGE IN THE ECUADOR ANDES.

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accidents not infrequently occurred, but I was assured that not many men were lost, which, of course, was an exceedingly comforting assurance, especially as I noticed that the guides were careful to see that either I or George should be the first to cross these confounded structures. At one of these bridges we saw on the rocks three hundred feet below the skulls and bones of two men who had been lost about eight years before. "You see, señor, we could not reach them, but we put three new ropes to the bridge." I made no comment on this remark, but at all the bridges we came to after this I modestly refused to take precedence of the speaker. In many cases the depth of the fall of mules and men must have been so great that it was impossible to see where the remains had lodged; and in other places they had been swept away by the torrents below. Several of the bridges we crossed were at such a height that the bottom of the gulf was lost in impenetrable blackness and could not be seen. At one place I threw down a boulder as big as one's head. It was so long before the fall could be heard that I thought it must have fallen on something of a soft nature; but when the crash reached our ears it reverberated like the discharge of a cannon, and was re-echoed in a wonderful series of prolonged rumbles from the surrounding rocks.

Frequently we passed the ruins of stone buildings such as those previously described, and some of more pretentious character—the remains of palaces of the Incas, as I surmised. In no case was there any signs of inscription or sculpture about these ruins, which surprised me, as even the most savage nations usually make some rude attempts at such ornamentation. If any such ever existed here it must have been destroyed, or removed long ago, but I am rather inclined to think that these buildings had never been ornamented. All were remarkable for the low pitch of their elevations and doorways, where these remained. In no one instance

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was it possible to enter the dwelling except by going down on the hands and knees, insomuch that I was almost tempted to think that the former inhabitants of the country must have been a race of dwarfs. None of these buildings appeared to have ever had windows or any substitute for them, unless small holes had been left in the roofing stones. Probably in a country where the climate is so equable and temperate at all seasons of the year, these houses were only used as sleeping places and storehouses. In all parts of South America I found similar buildings in fewer or greater numbers, and in all sorts of situations—high up in the mountains, on the open plains, and buried in the dense forests.

Regarding the natural history of this region, my information is much scantier than I could have wished it to be. No long stay was made at any spot, and dawdling on the road was out of the question when in the hands of an impatient guide, who could not be persuaded to believe that to hurry along as if for dear life was not the most important thing required of him. In the great central valley—I prefer to so call it, rather than to give it the various local names which I found to prevail, and vary, in various parts of it; and the principal of which are the valleys of Quito, Cuenca, and Alansi—in the great central valley, I say, and in the higher regions on either side, small rodents abound; but I found a marked difference of species on the eastern and on the western sides. There were no fewer than ten species of the mouse tribe on the former elevated district that I could not find on the latter. It must be noticed that it is not certain that they were all *mice*, though they so seemed to be to me. It will be safer, perhaps, to say that they were *mouse-like* mammals. I am not sufficiently trained as a naturalist to draw excessively nice distinctions; but for the general reader it will be sufficiently near the mark to say that in appearance and habits they were mice (and rats), and were so called in the popular language of the people of

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the country. Six species seemed to be peculiar to the western face of the range, and four only were common to both sides and the valleys between them. Several species were very local, and some were found far above the snow-line. These last were small, short-tailed mice. Several other species, ranging in size to a large rat, were short-tailed, and none were of species found in Europe, or, as far as I know, in North America. I cannot attempt a detailed description of these mice, since I should only weary the general, and puzzle the scientific, reader. I am not acquainted with the scientific "nomens" of these mice, but if it is of interest I may state that two species, one very small, one the size of the English vole, which were found locally in parts of the eastern range, are identical with species seen in the Diamantino district of Central Brazil. The greater part of these mice were found in most parts of the Andes as far south nearly as Northern Patagonia. So they are not only exceedingly hardy (being found at an elevation of sixteen or seventeen thousand feet) but extremely widely spread in the Southern Continent. One of the most ubiquitous of these rodents was a large rat of a yellowish-brown colour with a tuft of very dark hair at the end of the tail. This rat was found almost everywhere in the mountains and valleys, and also on the Pacific plains, where the heat is very great compared with the temperature of these elevated regions. I afterwards found this species very abundant in the mountains of Peru and Chili. It appears to be the commonest rat hereabouts, and has a singular habit when running of cocking its tail up over its back, reminding me of a female opossum when she has young. It forms deep burrows in the hard ground, and I have seen them digging up roots and feeding upon them, sitting up on the haunches like a squirrel while making the meal. This rat, though found in the valleys, does not approach the snow-line, and certain specimens which I kept would not endure a damp,

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chilly climate, but soon died when exposed to such a temperature.

On the eastern side I also occasionally saw a small rock cavy, similar to an animal I had seen in Brazil, and perhaps identical with it; and in several parts of the valley were at least two varieties of chinchillas. I never saw them near the centre of the valley, narrow as it is; but they seemed to prefer to keep among the broken rocks and volcanic débris on either side. Their habits did not seem to differ from those of other field mice, to which animals they have a great likeness in all respects. The chief peculiarity of the mouse tribe in these regions seemed to be in the tail, which was either remarkably short, or furnished with a tuft at the end, as in the chinchilla and yellow rat. Many of these little animals are very shy and nocturnal in their habits, so that an investigator in natural history, who did not make it his business to search the rocks at night, might never be aware of their abundance, or even of their presence in these elevated mountains, and the same remark applies to other districts of the American Continents. Moonlight nights are the best time to watch nocturnal animals, for I have found that no matter how bright the night may be, the most timid creatures will come forth from their hiding-places soon after the sun has set.

Perhaps the most remarkable animal in this part of the Andes was a very handsome wild-cat, in size about as big as an ordinary domestic cat, and of a light grey colour flecked with black. Its habitat was among jagged rocks where there were plenty of small caves and crevices for it to hide in; but it made nightly excursions into the valleys in search of prey. Though the inhabitants often lose their fowls, the small rodents are the chief objects of pursuit of this cat, and what damage it does to the hen-roosts is patiently borne on account of its usefulness in keeping down the rats and mice. This cat harbours in the rocks of both sides of the valley, but I

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only saw it in the southern part; and it is not numerous. It is a very fierce little animal, and will face a dog much bigger than itself. I did not see its young, and failed to obtain a live specimen. It is most abundant to the east of the town of Ona.

I saw no reptiles of any kind in this valley, nor on any part of the mountain side at a greater height than some five or six thousand feet above sea-level. The lizards which are said to occupy this part of the valley were not seen. There were mosquitos here, and insects of most orders that I am acquainted with, but these were only found sparsely above the snow-line, except the mosquito, which had its favourite haunts just about that limit. Two small beetles lived among the snow-covered rocks, one grey with black spots, the other dull red. There was also found at a very great height, though not quite to the snow-limit, a small moth of a drab colour, with small brown spots, and bright red under wings. Spiders, as usual, were everywhere, but none of great size. Ants were seen in the valleys, and on the mountain sides, but they were not numerous, and kept well below the snow-limit. In fact, insects, though numerous in species, were not so in individuals; and we were here free from one of the worst torments of the warm plains—the constant persecution by the flies and fleas. And though I have said there were mosquitos here, we were never once bitten by them.

Birds were not numerous, except hawks, which were no doubt attracted by the great number of small mammals. There was a kite and a buzzard, and three species of owls (I refer, of course, only to species noted by myself; there may be many others which were not seen), and a crow. The latter, which was a very local and scarce bird, I have never been able to identify; but it is found in greater numbers farther south among the mountains of Peru, and also to a limited extent on the plains. It is a solitary bird of rather small size, and breeds in the

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face of inaccessible precipices. I only succeeded in reaching two nests, which were both empty. I was told that the eggs are green, thickly blotched with brown and red. The condor of this region, I think, is simply a variety of the Californian condor. It is a much smaller bird than that usually called the "condor of the Andes," and is much oftener seen solitary or in pairs; though sometimes as many as a dozen congregate together. The great condor I did not see in Ecuador, and if the one I am writing of is distinct from the Californian condor, then there are three species of this bird.

Not one of the birds of the Amazon Valley could I find in this elevated region, which is worthy of note, since it is almost possible to drop a pebble from the precipitous cliffs of the east side into that valley. A single flock of wild ducks was noticed flying over one of the mountain streams, but they were very wary, and could not be approached near enough to ascertain the species. No other water-fowl whatever were seen, and small birds were scarce. Such as there were, seemed to be local varieties or migrants here, though a few of those found had also been seen on the plains between the sea and the west side of the mountains, which makes the absence of Amazonian species the more remarkable. There was a bird of the thrush family, and a larger bird with a brown and black mottled plumage and rather long legs. It ran very swiftly, and when forced to rise, flew straight along close to the ground. It was seen alone, in pairs, and in parties of eight or ten, and employed itself much in turning over the droppings of cattle in search of insects, often following the herds like starlings; and, according to the contents of the crops of several that I shot, larvæ of beetles, &c., form a considerable portion of its food. I think this bird could be recognised by its cry, which sounded just like the syllables "chat, chat, je-e-e," the last sound being prolonged. It has also a peculiar whistling note which I cannot express; and if

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it is alarmed or surprised, it stands stretched upwards almost straight, and utters a single deep note—"jugg." I could learn nothing about its nesting, but if what the people say is correct, it probably goes down to the plains to breed. A few small, sombre-coloured finches, together with the siskin before described, complete the list of birds found in the great central valley of Ecuador. The nest of one of these finches was found in a shrub so small that I could easily have put the lot, bush and nest, into a band-box. The eggs were pale pinkish, thickly sprinkled with reddish brown.

One day, near Otavalo, I surprised a kind of wolf in the act of feeding off the carcass of a small deer. I shot the wolf, and the bullet went through it without killing it; for just as I was in the act of laying hold of it, it jumped up and rushed down a deep gully, where it could not be followed. Its fur was light reddish, much the colour of an English fox, with black feet, and black markings on the neck and face. It stood high on the legs; and in this respect, and size, and every other point, except colour, exactly resembled the common American wolf; yet the people hereabouts call it a wild dog. They say it is not often seen, but occasionally prowls about at night-time, endeavouring to surprise the smaller domestic animals. It is of a sneaking, cowardly nature, and never goes in hordes; one or two, or a bitch with her cubs, being the greatest number seen together. The deer upon which the one I shot had been feasting is also a solitary animal, never being found in herds, and only occasionally in families of three or four. It was of the small, spike-horned species common in Brazil, and which is found, occasionally at least, at considerable heights in these mountains.

I will conclude the remarks on the natural history of this region with some notes on an animal that cannot be passed by without notice, for it is one of the most remarkable living objects of the whole Andes range. I

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allude to the guanaco—the camel of South America. There are two varieties of it, the guanaco and the vicuna. The latter is the smallest of the two animals, and is only found in limited numbers in the southern provinces of Ecuador. The common guanaco is found everywhere in the mountains up to the snow-line, and is here an eminently Alpine animal, occupying the place of the mountain goats of other countries. In the plains of South America its habits are quite different, but that may be noticed later on. Formerly the animal was much more plentiful than it is at the present time, for it has been much persecuted for the sake of both skins and flesh, which is much esteemed as an article of food by all sorts of people here, the Indians especially. It probably ran some risk of being exterminated in Ecuador, for it is now, to some extent at least, protected by the laws of the country. I am an advocate of the strict preservation of all wild animals, under equable laws, which do not give undue advantage to either individuals or classes; but the laws here are unjust in the extreme, for while they permit the hunter to enjoy the flesh of the animal he has pursued and taken, they compel him to give up the skin to *the priests*. It was with great difficulty that I, after paying twice over for my own property, and bribing both priests and customs-men, was permitted to bring a couple of skins from the country.

A full-grown buck guanaco stands forty inches high at the shoulder, and is but little short of eight feet in length. The general appearance of the guanaco is that of a humpless camel; but it is a graceful animal, and the herds are remarkable for the regularity of their movements in a body. In a large herd there seems to be more than one leader, but they all conform to a general movement initiated by the oldest buck; and no other animals show such trained-like motions when following the directions of such a leader. I can only conjecture the weight of a guanaco, but

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that of large bucks cannot be less than five hundred pounds. The does are quite a third less in size and weight than the bucks. The hair is soft, curly, and thick, and on the sides and belly hangs in long, matted tresses. In colour it is a very light, reddish brown, inclining to white on portions of the under parts. There are two domestic varieties of this animal, one of which, the llama, so called, is used as a beast of burden; and the other is the alpaca, the wool of which is so celebrated for the manufacture of ladies' dress material. In the alpaca the hair is greatly developed as the result of domestication, completely enveloping the animal, and often trailing on the ground. As in all domestic animals, the hair varies a good deal in colour. It is always much darker than in the wild llama or guanaco, and is often quite black, and the forcing the growth of the hair has had the effect of greatly reducing the natural size of the animal, which is much inferior in that respect to the guanaco. The llama is capable of bearing a weight of four hundred pounds with ease; but whatever use it may formerly have been put to, it is now superseded as a beast of burden in Ecuador by the horse and the mule. Very few can now be found in this country in a state of domesticity, though it is said that at the time of the conquest trains numbering thousands habitually travelled from one part of the country to others many hundreds of miles distant, carrying precious ores and other goods. They were also used for riding purposes. The alpaca is, of course, bred for the sake of its hair only, and there were some very large herds maintained by private owners in the valley at the time of my visit. Both llamas and alpacas, like the camel to which they are allied, are most offensive animals. They have a beastly habit of snorting mucus over any person who approaches them, and that without having received the slightest provocation.

The wild llama, which is always spoken of by the

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Spanish corruption of its native name, guanaco, is very rarely seen solitary. The herds are not now generally large, but there seems to be no doubt that before the country was so much overrun by its conquerors, the herds often numbered five or six hundred. They now seldom number more than twenty-five to thirty, and are more often about a dozen strong. I have spoken of the guanaco occupying the place of the wild goats of other countries, but it must not be thought that there is any analogy in the habits of these two animals. Nothing could be more un-goatlike than the habits of the llama, nor can the speed of the two creatures be compared. The guanaco can move at a considerable pace, it is true, but it altogether lacks the activity of a goat, and I have never seen it make the slightest attempt to leap or jump, and it can be easily cornered in a spot where the chamois would laugh its pursuer to scorn. It climbs and scrambles surprisingly, but never leaps. After carefully watching it on many occasions, I have arrived at the conclusion that it cannot leap; at least, farther than two or three feet—in fact, about as far as a cow could jump. Moreover, it thoroughly hates the snow, and though it frequently wanders to vast altitudes, eighteen thousand feet or more, a patch of snow will bring its travels to an abrupt end. It never voluntarily treads on snow. It is as sure-footed as a goat though it cannot leap, and will pass in perfect safety the narrowest paths and ledges; yet they are never seen on such perilous spots as the chamois, big-horn, and wild goat habitually haunt. You are almost sure, therefore, if you shoot a guanaco, to be able to recover the carcass, for it is seldom that they fall over a precipice, a vexatious loss which is constantly occurring in all sorts of goat-shooting. For you seldom get within fair shot of these animals until you have driven them into some precarious position from which they cannot venture to leap.

The llama is a quarrelsome, evil-tempered brute, and

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intensely jealous of his does. The males fight like furies, keeping up a loud squealing cry in the meantime, and you seldom shoot an old buck whose hide is not well scored with the cicatrices of wounds received in these fights. Some writers have ascribed these scars to the claws of pumas which have attacked the llamas, but this is a mistake. The guanaco seldom has the good fortune to escape a puma's attack, for they have literally no means of defence against that animal. They are polygamous, each buck having about a dozen does in his proprietary. The young bucks, not yet strong enough to establish themselves by force in female favour, and the old fellows who have received the kick-out, herd together, and these form the strongest flocks in number that you will meet with. Having vanquished his foes, the buck commences with his lady-loves, and here again there is an all-day's squabble, biting, and screaming before his attentions are permitted. In a word, the llama, in all the relations of his life, is one of the most vicious, quarrelsome, and offensive of animals. They all spit at each other just as readily as, in the domestic state, they do at their owners. This habit seems to be their chief method of offence, for I never heard of their attempting to bite other animals, or human beings, or in any other way attempting to defend themselves. The flesh, which I have often eaten, resembles both mutton and venison, but I see no reason for the great estimation in which it is held by the people here.

I have been looking over Darwin's account of these animals in Patagonia, and note that he says that domesticated guanacos sometimes attack men by striking them behind with both knees. The assertion appears to be given on hearsay evidence, but it may be true. I have never seen anything of the kind myself, or heard of it. With regard to these animals drinking sea water, those in the neighbourhood of the sea coast habitually do it, and in other parts they frequent the salinas, or "salt-licks,"

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as we should call them in the States. All guanacos are very fond of salt in any form, and one of the surest ways of hunting them is to lie in wait near a salt-lick, for the wild llama is a very shy animal and difficult of approach.

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CHAPTER IX

THE HIGHLANDS AND LLANOS OF NEW GRANADA

I PASS over many objects of interest in Ecuador, such as Chimborazo, Cotopaxi, and other volcanic mountains, because these well-known places have been so well and frequently described that I cannot but feel that my notes would seem commonplace after the descriptions of so many scientific writers. The mountains seemed to me to very perceptibly increase in height as we advanced northward; the roads were certainly of greater elevation, many of them passing over huge rocks that were but a few hundred feet below the permanent snow-line. Often we had snow under our feet, and more than once travelled for hours in the midst of heavy snowstorms, incurring great risk therefrom. I will not dwell on the troubles of this time, but I fear my obstinacy in pushing forward on one occasion, in spite of warnings, nearly led to the destruction of the whole party. At great elevations very heavy falls of snow sometimes occur, and that portion of it which lodges below the permanent snow-limit often forms dangerous avalanches. One of the most terrifying, and at the same time beautiful, sights, is the rush of avalanches over the terrific precipices of these mountains. I should think that some of the snow masses were at least a thousand tons in weight. The roar of the falling mass, which carried masses of rock with it, resembled thunder. Of course nothing so frail and light as a man and horse had the least chance of resisting the force of such a mighty rush, but it is the custom of the country to avoid travelling over the dangerous passes at the

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season of the year when these storms are likely to occur; for not only is the danger to life very great, but the fallen masses of snow usually block the roads, and render them impassable. I had myself to take refuge in a cave, where we remained prisoners for eight days, and were nearly starved; though fortunately it is my custom to always carry at least three days' provisions when travelling.

Rugged as is this part of the country, many of the roads go right over the tops of the mountains, while others are carried along the face of precipitous cliffs. These last are most appalling passes, being simply ledges cut in rocks, which are often as straight up and down as a wall. The accidents of Nature which occur to these ledge-paths, such as the fall of masses of rock, avalanches, and the wearing away of portions of the path itself, are so frequent that it is rarely possible to travel long without meeting with some thrilling experience. Sometimes we found a great gap in the path, and had to dismount and scramble over the fault with our hearts in our mouths, leaving the mules to pick their way as best they could. The skill and sagacity of these animals is truly wonderful; my mule, at one place, actually wriggled across a gap, where a fall of rock from the path had occurred, on his knees, the crumbling earth not giving him a sure foothold. Occasionally the path was so narrow that we had to sit sideways on the mules with both legs dangling over an abyss of unfathomable depth. What would have happened if we had met travellers coming in the opposite direction it is impossible to conjecture. Neither party would have been able to advance or retire. I inquired of the guide what course we should take in such an event. "Who knows?" he said, shrugging his shoulders while blowing the ashes from his cigar. I pressed the question. "Why then," he replied, "if the señor will know, the weakest party will have to go over," pointing to the frightful gulf on our right. Whether

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men have saved their lives at such an awful price I know not for certain; but I am strongly of opinion that some of the stories to that effect that I have heard are not without foundation. Meetings on these dangerous paths are, however, very rare. In the first place, the number of travellers using them is small, and then they usually all pass in one direction at a certain season, and return the other way after a fixed interval, the object of the journeys being to attend markets, &c.; so that when the roads will be used, and in what direction, is generally known to ninety-nine of every hundred passengers using them, and information is nearly always to be had. For instance, at one dangerous pass we learned at a herdsman's hut that a string of pack mules was expected, and we had to wait most part of the day until they had gone by. From the drivers of this team we learned that another dozen mules would follow in four hours, so that we had to pass the night with the herdsman. Rather critical work, I thought. Accidents are said to be rare. So they are, because travellers are few. But in proportion to the number of persons using these passes, the percentage of deaths is frightfully high; while some single passes are responsible for the loss of hundreds of mules annually. The nature of the precipices is such that it is rarely possible to recover goods, or the bodies of the victims who are unfortunate enough to slip over the edge of these dreadful gulfs. Rarely could I see a place where it would be possible to descend a hundred feet, while in many cases a sheer fall of a thousand feet or more would be the result of a false step. Over and over again we saw the bones of mules lying just below us, where they had lodged on shelving rocks; but the majority of those that had fallen must have gone over quite out of sight.

The vegetation in this elevated district was not profuse, yet I can scarcely say it was scanty. There were places where I was surprised to see the number of cattle

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which found a subsistence on the mountain sides. There were here, also, more sheep, especially merinos, than in Ecuador; and the cattle, though of a small breed, furnished the best beef I have ever tasted out of England. Mules are much more prevalent in this district than horses, the latter not being sure-footed enough for these precarious paths. Alpacas were abundant, and there were many more here that were jet black in colour than I saw in Ecuador. There were also more wild llamas in the remote regions of the mountains; but near the villages and estancias they were sometimes almost exterminated. I may mention, by-the-bye, that they are easier to surprise and shoot in the mountains than in the extensive open plains of the southern part of the continent. Viewed from a distance, the rocks look bleak and bare; but there must be a considerable quantity of grass and herbage to support all these animals, which were everywhere in good condition. Here and there there were a few stunted trees, generally standing solitary at long intervals; and the same description applies to the bushes, which were more numerous, but generally clustered in ravines and clefts of the rock. One of these bushes appeared to me to be an azalea, though I thought that shrub to be characteristic of North American mountains. The flowers here were a brilliant scarlet, and so profuse that the small bushes were covered with them. There were patches of a small red calceolaria some distance below the snow-line, but at a much greater elevation than I ever saw it elsewhere. Other wild flowers, peculiar to the country, were scattered here and there in small patches.

The fauna of the country was similar to that of Ecuador, most of the small animals and birds found there being seen here also; but as we advanced farther into the heart of this region we discovered new species, so that at length I came to the conclusion that Granada is much better supplied with many forms of animal life

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than Ecuador. This may be partly owing to the fact that a great part of the country is but very thinly inhabited, and whole districts are entirely without a fixed human population. While certain animals and birds prosper and increase in numbers under the "protection" of man, other species entirely perish or forsake the country, as the result of his presence and influence. How this comes about is not always easy to explain, seeing that some of the most persecuted creatures, like the Jews among men, seem to prosper and increase under persecution—like the rabbit, mouse, rat, and house-sparrow—creatures which it seems impossible to exterminate, though millions of money have been expended in the attempt. On the other hand, many birds are driven from countries or districts through their timidity at the presence of man, through the destruction of their favourite haunts, and through the scarcity of food induced by the great increase of domestic animals which always accompany man; to say nothing of the destructive propensities of the lord of creation himself. Generally speaking, however, small birds cluster round the dwellings of man, and one of their most favourite haunts is the cultivated tract found near a village or isolated house. Some animals abandon their natural haunt, and take up their dwelling with man, when they are often reckoned among the most unwelcome of his guests. Take the common house-mouse and the rat as examples. These animals are never found (at least in my experience) in woods or fields. They haunt buildings and houses, and their farthest jaunt from home seems to be to the bottom of a corn-rick.

Among the birds found here which were not seen in Ecuador was one of those tiny woodpeckers which naturalists call piculets. It may be remembered that I saw a very beautiful little creature of this family on the river Trombetas in Northern Brazil. This bird was about the same size (that of a common sparrow), but very

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different in style of coloration. It is impossible to clearly describe it, the plumage was so mottled with blue, green, and deep red brown. There was a bright ultramarine patch on the head, and the tail was striped longitudinally with white and deep green. Only a single pair of these birds were seen, so it is probably scarce. They had seven young ones in a hole of a tree-trunk, fifteen feet above the ground. There was a soft layer of decayed wood dust at the bottom of the hole, but no nest, and very little of the droppings of the birds, which must therefore have been removed by the parents. The young were fledged and of a grey colour, with brown markings. As I secured both parents for the benefit of my collection, I took the young also; but though I used every endeavour, assiduously assisted by George, to rear them, I found this impossible, and therefore I preserved them and did my best to arrange them and their parents as they appeared in life. These birds were taken at a height of at least nine thousand feet above sea-level; while the Trombetas species inhabits the hot, moist forests of the plains where the heat is tropical, although not perhaps so much so as in other countries in the same latitudes. I do not know how widely these piculets are distributed in South America, or how many species of them there are. I never saw any south of Brazil; and the one just described is the only species seen by me at any great height above the plains. I have met with seven species in all; but I always considered and described them as woodpeckers until I came to sell my collection, when they were seen and examined by trained naturalists, who declared at the time, some twelve years ago, that many of the birds I had obtained appeared to be new species, among them three of these piculets, the others being more or less known.

Humming-birds are among the most characteristic and the most widely spread of all American birds, extending from the United States to the extreme south of the con-

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tinent; yet, strange to say, they are an extremely local race of birds. There are said to be about five hundred species known to science; if there are no more than this, it is my opinion that at least two hundred species, or very marked varieties, still remain to be described, though some, unfortunately, have been exterminated by the bird-hunters. The humming-bird is one of many animals that prove that climate is not one of the essentials of their existence, for not only are they found on the hottest plains, but may also often be seen sporting over the snows of high altitudes. In these mountains they are found at an altitude of at least ten thousand feet, and they are to be seen in the plateau valleys of Ecuador, though not in great numbers. The strangest circumstance is that each valley, and also many of the hills, seems to be inhabited by a distinct species, which is not found elsewhere. As an instance, I may mention two valleys in this part of Granada, separated by a lateral range of some three thousand feet, but not a dozen miles apart. Each valley had a separate species of humming-bird (not a mere variety, but a very distinct species), and I could not discover similar species in any other part of the country. The slopes of the great volcano, Chimborazo, are haunted by a species of humming-bird not found elsewhere; and the same may be recorded of several other, not of the highest peaks only, but of some of very moderate elevation. In these high mountains I have seen these interesting little creatures flitting about in snow-storms without appearing to suffer any inconvenience. They are nowhere numerous. Even in the hot plains they are not so abundant as I expected to find them, until I came to see for myself; and, as I have several times stated, in some places they have been exterminated by the caterers of ladies' finery. I cannot mention any one species that is widely distributed; each district has its own species—the reason probably that there are so many. One reason for this curious circum-

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stance is probably the inadaptiveness of humming-birds' wings to long flights. The flight of these little creatures is not bird-like at all. It more resembles the flight of insects. The wings vibrate so quickly that they cannot be distinctly seen, and cause that humming noise from which the birds receive their name. Moreover, they have the power (unique, I believe, in the flight of birds) of suddenly propelling themselves backwards the distance of a yard or more in a perfectly straight line. In this they resemble certain bees, wasps, &c., a class of insects which their flight more nearly approaches to than any other. The largest humming-bird I have seen might be somewhat larger than a skylark, the smallest was less than an inch in length of body alone, though with bill and tail it measured three; in other words, this Liliputian was not one whit larger than the big English bee with the velvety black body. I have examined more than a thousand humming-birds' nests—all, where placed in trees or shrubs, usually within reach of the human hand, and I have never seen a humming-bird's nest in any other position. The end of a twig, or long leaf, is generally chosen to lash the nest to with fibres and mosses, and it is very firmly secured to this frail site. The object of placing the nest thus seems to be to secure it from the visits of snakes, which cannot lower themselves down a thin twig. All humming-birds lay two white eggs, which are the same size at both ends, and not of the typical egg-shape. They are never spotted or marked. The smallest nest I have seen was less than two inches in diameter. The humming-bird is not a forest bird, though sometimes found on the outskirts of great forests. It prefers shrubby dells, and plains and hillsides where there are scattered clumps of trees and flowering bushes. I have never seen a flock of humming-birds. Six or eight may be seen scattered about a tree or cluster of bushes; and it is exceedingly seldom that two or more species commingle together. Humming-

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birds are very pugnacious, continually quarrel among themselves, and courageously attack birds of a dozen times their own bulk, driving them away from the vicinity of their nests. They show no fear of man, and I used to shoot such specimens as I wanted for my collection with a muzzle-loading percussion pistol, loaded with dust shot; often, indeed, I have knocked down the smaller ones by throwing a handful of sand at them, and they may be caught in a butterfly-net. They will not live in captivity, speedily fretting themselves to death. The food of all species consists of insects; but some will eat honey when they find it. Snakes do not capture many of them; but the bird-eating spider does: for he often succeeds in reaching the nest by dropping upon it from above.

On the eastern slopes of the Granadian mountains I found the common green motmot. A peculiarity of this bird is that the two central tail-feathers are much longer than the rest, and for an inch and a half before the racket-like end is reached the vane is bare. It is asserted that the bird itself strips off the web. For what purpose? The assertion is almost universally credited among naturalists, but I strongly doubt it. Unfortunately I have not been able to conclusively settle the matter, but I know this, that in several other birds with similarly shaped tails, the pattern is due to Nature, and not the whim of the bird. I think, therefore, that it is extremely improbable that the motmot is an exception to the rule. At the same time there must be some reason for the belief. It arises, probably, from a misconception of the bird's motions when preening its feathers.

All kinds of birds are more abundant in Granada than in Ecuador, especially on the eastern slopes of the mountains. Condors were numerous, but they were of the smaller kind, not the species found southward in Chili. The large condor is said to frequent the Chimborazo district. I did not see it there. All the condors of this

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region are of the smaller variety, according to my experience—that is, they are of the Californian variety, or greatly resemble it. Another point on which I cannot agree with many writers is the height to which these birds soar. After prolonged watching, I have never seen them visit the higher snow-covered peaks. There are none on the summits of Chimborazo and Cotopaxi. I do not believe that any of them ever attack living animals, except, perhaps, those which are helpless from accident or other causes. Condors are vultures, and prey on carrion.

On the slopes of the Granadian mountains, facing eastward towards the Amazonian plains, there are many caves, in some of which I found vast numbers of guacharos, a species of goatsucker, having the usual mottled plumage of those birds, with the addition of a large number of white spots. Their habits are also those of the typical goatsucker, being strictly nocturnal; but it is the only species that I know of which assembles in large flocks. It builds colonies of nests in the caves, thousands together, and lays white eggs, in this respect resembling some birds of the swallow tribe. The nests are very difficult to get at without breaking the eggs; but on the other side of the continent, where this bird is also found, the young are taken wholesale, and boiled down for the sake of the fat, which they yield in incredible quantity. This fat is sold in the markets under the name of "guacharo butter," and is largely consumed by negroes and Indians. The birds themselves are good eating. They are largely frugivorous, but they also prey on insects. Here, in Granada, they occupied the same caves with myriads of vampire-bats, the true blood-sucking vampire, which is the highest point I have ever found this animal, being, I suppose, some six thousand feet above the level of the plains. There are many other bats here also. The caves I allude to, the precise situation of which I cannot fix, do not seem to be visited by

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either the inhabitants of the country or the wandering Indians, and the birds are undisturbed.

I tried to reach the eastern plains by a route of my own choosing, but in this I failed, and was compelled to employ a guide. We descended from the mountains by some of the most breakneck paths I had traversed in this breakneck journey; but though we had several hair-breadth escapes, we reached the llanos without serious accident.

I have entered into no geographical details of this part of the country, thinking that I can scarcely improve on the many accounts of other travellers in these parts; but I will say generally that this country is one of the richest in natural products in the whole continent. Nearly all the metals are found here in great quantities and excellent quality. I am not so sure of the quality of the coal, but there are very extensive beds of it, which in places I found cropping out in long lines of cliffs. The gold is another matter. I saw quartz which, I am confident, would run twenty to forty ounces the ton, and some of it probably much more; and, it is not generally known, I believe, that gold is present in quantity on some of the eastern ranges. I, however, found rich quartz at several points, but thought it advisable to keep my own counsel about it at the time, and whether the Granadian Government now work the gold in real earnest is not known to me. To do so effectually expensive plant would be necessary, and the position of the richest locations would be a serious drawback. In the hands of an energetic company, however, with plenty of working capital, some big piles might be made. Near the foot of the mountains, westward of Xiromena, I found diamonds; but some specimens which I brought to Europe were declared to be of bad colour, and no great value. This discovery I also kept to myself, as I was by no means anxious of drawing the particular attention of the authorities of the land to my movements.

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That part of the llanos I first struck was the forest region, the extent of which I do not know; but there are certainly many thousands of square miles of virgin forest, the greater part of which has never been explored by white men, unless some casual wanderer like myself may have occasionally penetrated it. There are no towns or villages in this district, and the only people I met were the wild Indians of the desert, who here are entirely uncivilised, yet not so utterly forlorn of condition as the savages on the Purus. Some of these men were armed with bows and arrows, nearly the only occasion on which I saw this weapon in the hands of South American Indians; but they displayed no great skill in using it. The blow-pipe and wourali poison is unknown among them, and the weapon on which they seemed most to rely was a long spear, the shaft of one of the longest of those which I measured being fourteen feet. With this spear they can kill a certain class of animals, such as ant-eaters, &c., and one of them told me he had occasionally surprised and killed deer and tapirs by throwing it. This man could throw his weapon with considerable force and precision, as could some of his comrades, one of the most expert being a woman. Most of their game is taken in traps, however, or by hand; many small rodents being dug out of their burrows, and others hunted down by their dogs. These dogs were undoubtedly the reclaimed wolves or wild dogs of the country, some of which I from time to time saw roaming in the forests and on the open plains farther north. They were similar (that is, a mere local variety) to those seen on the Purus, and were snappy, treacherous animals, which seemed to have no great affection even for their masters, who kept them in subjection with an iron hand, inflicting terrible chastisements for their faults, which were mostly food-snatching and viciousness to the children, toward whom they seemed to be particularly spiteful.

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Though these Indians have intercourse with the whites on the llanos to the north, and occasionally visit the civilised and settled parts of the country, they have none of the conveniences of life such as are found in the townships, and there are no firearms among them, these being forbidden by law, which seems to be well obeyed; the traders, I suppose, finding it to their interest to keep dangerous weapons out of the hands of these Indians; otherwise, I fancy, in such a country as this, firearms could scarcely be kept out of the hands of any class. The only weapons of European manufacture which I saw among the savages were knives, with which, like everybody else in this country, they were well furnished. They lead wandering lives, subsisting by the chase, and sometimes spend many months in the heart of the forest, never once coming from among the trees. They build huts of a temporary character, but seldom remain long in one spot, they being compelled to keep constantly on the move to find game. Some of them told me that they often underwent great privations, and that occasionally some of them, especially children and old people, died of starvation. There can be no doubt that the mortality among the children of these people is very great. Asked if they ever abandoned their aged people in extremities, they all vehemently denied it; but I noticed that there were but few old men and women among them, so that in any case, the life they lead is not conducive to longevity. Most of them understood Portuguese, as well as Spanish, sufficiently well to maintain a simple conversation in those languages, so it is tolerably clear that they have some communication with the inhabitants of Brazil. It is probable, therefore, that they wander over vast extents of territory. Their forms and features are anything but handsome, but they seem to be a simple-minded and harmless race of people. One of their most attractive traits was their evident fondness for their children, to whom they were invariably kind.

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I am not so sure that the men always well treated their wives, for several of the poor women showed severe bruises about the face, and one woman had a terrible cut across the cheek, the gaping lips of which had been roughly sewed together with sinew string. Where this rough surgery had been learned I cannot say. Probably the Indians had seen a similar operation performed among the Spaniards. The wound was in a shocking condition, and I offered to do what I could for the sufferer. My offer being accepted with alacrity, I was surprised at the great patience displayed by the woman, to whom I was compelled to cause great pain while re-sewing the wound. The gift of a needle or two, with some thread and a pair of scissors, sent this poor creature into ecstasies. These articles, of course, are procurable in the townships, but I understood that these tribes never venture within the pale of civilisation. For one thing, they would not be tolerated in the airy garb they assume in the woods. Most of the men were stark naked, or next door to it, and the women possessed little clothing beyond the usual apron, and a rag or skin across the shoulders. None of them possessed shoes or moccasins of any kind. This nudity is not altogether the effect of poverty, though the Indians are poor enough; but I have noticed that these people everywhere in South America delight to go unclothed when out of sight of the whites.

One day while I was with these Indians a man rushed into camp in a state of great excitement, and immediately all the males, from the boys upwards, began to arm themselves in hot haste and run into the woods. I learned from our guide that a herd of peccaries had been discovered, and were about to be attacked. As every one, including my own men, ran off, I thought I might as well go myself, though to tell the truth I entertain what is often termed "a wholesome dread" of these spiteful little brutes, which are acknowledged to be

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so dangerous that but few American hunters ever venture to attack them. There is no driving off the banded little furies, who always attempt to revenge the death of one of their number. I have heard the most exciting tales of adventure from hunters who have been attacked by peccaries. One man told me that he had to "tree," and it was not until he had shot three-fourths of the herd that the vicious little brutes permitted him to descend and retire. A good thing for him that he took his rifle up the tree with him, and had plenty of ammunition. All hunters have not been so fortunate, and men have been imprisoned in trees for days together.

Every one being ahead of me I was only guided to the scene of the hunt by the wild shouting of the hunters. They were driving the game towards a central spot in the forest; and as some of the women had joined the beaters, there were not fewer than sixty persons formed in a great ring within speaking distance of each other, though the forest was too dense to permit us to see more than an occasional excited face peering anxiously through the leaves. The peccaries, doubtless being aware that their enemies were in too great force to give them a chance of taking the offensive with success, had made one or two attempts to rush away. But the Indians were too quick for them, and a couple had already been speared. They were of the collared variety. Soon after I came up the herd made a determined dash to escape from the rapidly closing circle, and a few of them escaped; but the Indians rushed in front of them with incredible agility, stabbing with spears, and striking with tomahawks. Nearly a dozen peccaries were secured, while one of the Indians had his leg ripped up from the ankle to the knee. The wound looked a frightful one, and bled fearfully; yet, when we had bound him up he limped away with a cheerful countenance, having the prospect of plenty of food before him. Accidents, I afterwards learned, are

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not frequent, the Indians being too agile to be caught by the infuriated peccaries. This man attributed his misfortune to his feet becoming entangled in a mass of creepers at a critical moment. The wound could not have been cut cleaner with a razor; and the man speedily recovered, though he was walking with a limp when we left their camp.

Meanwhile the hunt went merrily on. As the circle narrowed, the peccaries made more frequent attempts to break through, and one or two generally escaped at each rush; but more were killed, until the last half-dozen were completely hemmed in and destroyed. Most of them seeing escape impossible, made a final rush at their persecutors, and being skilfully received on the point of a spear were thus slain. A few were brained with tomahawks by the more daring of the Indians, and one or two I was compelled to shoot myself in self-defence. Altogether more than thirty of the herd were secured, and there was a grand feast and gormandisation that night.

Peccary meat is not much like European pork. It is not so fat, and has a peculiar flavour of its own. Most of the people in this country—Indians, negroes, and whites alike—think a great deal of it, and it is fair eating. There is a strong-smelling open gland on the lower back of the animal, which is always running; and this must be cut away as soon as it is killed, otherwise the entire carcass will be tainted. Their flesh is also much infested with a sort of kernel, the result of the eating of fallen fruits in which insects have laid their eggs, which develop in the body of the peccary. At least two kinds of tree-beetles develop their larvæ in this manner; and sometimes the carcass of a peccary is so infested with them as to be uneatable.

I found that the mode of hunting described above was a favourite one among the Indians of these forests. Whenever they received news that any animals of size were at hand, the men turned out in a body, and

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forming a wide circle round the game, gradually closed in on it. I saw two tapirs and several deer killed in this way; and when such circles are formed a few smaller animals, such as pacas and agoutis, are generally disturbed and secured, the dogs coming in useful for this work. It is seldom that tapirs, deer, or peccaries escape from these great hunting circles. The men are so quick, and show such acuteness in anticipating the rush of the animals, that it is a most interesting sight to watch them. I thought, until I had witnessed their use, that the great length of the spears would render them awkward to handle in the thick cover of the forest, but I soon perceived that the length of the weapon enabled the hunter to reach many animals that would otherwise have escaped. They only throw the shorter spears, and that not very often, taking, as it were, a chance shot. The game is seldom stopped by the hurled weapon, but it is often so severely wounded that it can be followed up and secured. During these hunts the peeaiman stops at home and uses enchantments, taking no small credit to himself for the success of the hunt, and receiving rewards accordingly. While I stayed with these people, one of the women gave birth to a child, and the rascally peeaiman was in full fettle. That he did not harry the soul out of the poor woman with his witch-charms and incantations was really marvellous. Seeing, I suppose, that I was interested in watching his mummeries, this rogue came to me to make his boast. The woman, he said, had had a hard time of it, for an evil spirit had nearly borne away the spirit of the child; and failing in that, had made a lodgment in the woman's back, and would have to be expelled or she would be barren thenceforth. He went on with this nonsense until George exclaimed that the child was so much like the peeaiman that he didn't wonder at the anxiety he showed about it. This indiscreet remark, which was uttered in idle devilment,

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gave great umbrage, not only to the peeaiman, but to the whole tribe, insomuch that I doubted if George's life was safe, and I took a hasty departure. The peeaiman assured me that he had the greatest respect for me, as he knew that I was a great doctor, and on that account he would not permit direct violence toward my servant; but I ought to dismiss him, as he was unfit to be the servant of a peeaiman; and he added that he would not forgive George, but would bewitch him, and he should die within a month, an assurance that provoked such uproarious mirth from George that I trembled for him, expecting that he would be instantly speared by the irate Indians.

I suppose that it was the insinuation against their trusted doctor, or enchanter, that so aroused the anger of these men, for they do not seem to be particularly careful of the virtue of their women. Many of them showed strong traces of Spanish or Portuguese blood, and I am much mistaken if Master George himself did not leave his mark behind him; but he was a favourite with both men and women until the occurrence of this unfortunate incident, after which all shunned him as if he had the plague. I left the tribe early the following morning.

The woods, or at all events this part of them, were full of birds and small game, amongst which monkeys and macaws figured largely. There were also great ant-eaters, sloths, tree-porcupines, and a great number of small mammals, including two armadillos, but these latter were very scarce, or at least but seldom seen. I noticed nothing fresh to record in the habits of these animals; and some that were new to me, and especially several species of birds, I fear it would be waste of time to describe, as I have not sufficient material to enable the scientific naturalist to identify them. A green-and-blue macaw was the most widely distributed of that family of bird; but I saw a flock of the great scarlet

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macaw (so well known as a pet bird in England), which numbered five hundred individuals—a rare and beautiful sight. In addition to macaws, there were many smaller green parrots, about a dozen different species, most of them with long tails, but others with short, blunt tails. These birds were variegated with blue, and in a lesser degree with red and yellow; but the prevailing hue in the plumage of all was bright green. Very few of any kind of animals or birds found on the mountains to the west and south of this great forest were prevalent here. Snakes were unpleasantly frequent in all parts of both forest and plains, and often formed part of the food of the Indians. I shot an enormous boa, which, though only seventeen feet long, was fifty-two inches in girth in the thickest part, and this great size was not owing to the reptile having recently fed, for the stomach was empty. The bushmaster (*Lachesis mutus*) was found here also, and several species of rattle and other venomous snakes. These latter were especially troublesome on the outskirts of the forest, and had a nasty habit of crawling under our blankets at night, from which circumstance we had several narrow escapes when folding up our beds in the morning. These snakes on the plains had a habit of elevating the head and neck about two feet from the ground to watch us when we passed near, but on being approached they slipped away through the long grass so quickly and quietly that no motion of the long waving herbage was occasioned by which their course could be traced. As we got farther from the forest, snakes became less plentiful, from which circumstance it is probable that they frequently resort thither, and simply come out on to the open grounds for prey or other purposes. For instance, I am pretty sure that the meetings of the sexes take place in the open country, and large knots of snakes are sometimes seen here clustered and twined together in such a manner as to lead me to surmise that many males pursue a single

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female. They display the utmost fury if approached when under these conditions, hissing and writhing in a hydra-like mass, but do not separate. These clusters have power of locomotion, striving to move away in a wriggling, loathsome-looking mass; but if fired into they at once disperse, leaving the dead and wounded where they were struck. This habit is not confined to one particular kind of serpent, but I have seen several species under the condition described.

From our point of departure we came to no abrupt termination of the forest region, but the trees gradually became thinner, or wider apart, until the land looked park-like, but of an eminently tropical type of vegetation, palms and tufted grasses being prominent features in the landscape. After three days' journeying we were fairly on the llanos, only scattered trees being visible. On the seventh day from leaving the Indian encampment we reached San Juan-de-los-Llanos, and remained there for four days' rest and re-equipment. Upon leaving the town we entered, almost at once, the most desert-like region I had yet seen in South America. These llanos, or plains, are flatter than the prairies of the Mississippi valley, and of quite a different character. They are not destitute of water, South America being almost everywhere a singularly well-watered country, but there are numerous rivers and small lakes or ponds. Some seventy miles from San Juan we came to a large lake, a dozen miles across, and discharging by a river running south-east, but there was neither town nor hamlet on its banks, and no woods. A bush thicket clothed parts of the banks of both lake and river, but what trees there were, mostly palms, were scattered here and there, never forming a wood or copse. Looking across the plains a solitary palm or two, and here and there a clump of four or five, with a few bushes, were the only objects that broke the dead level. Under most of the palms there were a few bushes. It looked as if the slight shade

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afforded by the tree was the cause of these bushes flourishing, especially as they were most numerous where the palms formed small clusters. There were a few other trees, small in size, and scattered like the palms, and two or three species of cacti. Round about the ponds the ground was thickly covered with a graceful rush, often completely hiding the water, for these ponds and lakes are very shallow. Many water-fowl harboured in the rushes—ducks, rails, storks, flamingos, and others which I need not particularise just now.

There are no permanent inhabitants on these extensive plains. We never discovered a single hamlet, or any kind of dwelling other than the roughly constructed temporary huts of the herdsmen. The whole time we spent here we did not see two dozen Indians, and these were women and others attendant on the herdsmen. The Indians rarely or never wander over these plains. The reason is, according to the herdsmen, that they are always attacked and driven back by the Spaniards when found wandering on the llanos, as it is well known that their only object can be to steal cattle, or horses. I dare say this is the truth. At all events, game is so much more plentiful in the forest region that the Indians can have no legitimate object in wandering hither. My advent occasioned much curiosity among the herdsmen. They suspected me of being a prospector, about to establish a cattle estancia, and some were jealous, and others anxious to curry favour, with a view to future benefits. Many were the kind offers to point out the richest pastures and the sweetest waters; and the farce of "Remember, Codlin's the friend, not Short," was played over with amusing intonation and variation.

These herdsmen, like the cowboys of the States, lead terrible lives. When at work on the llanos they have no opportunities to indulge in excessive drinking, but they gamble among themselves to a ruinous extent, and

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being a warm-blooded race quarrels are frequent, with a quick resort to the knife. The gambling habit has such a hold of many of them that they resort to some silly chance, such as the spinning of a coin or watching the motions of an animal, to decide the most trifling actions of their daily life. They seldom move from one part of the llanos to another but under the influence of some chance, consulted or accidental. A herdsman is thrown from his horse (a rare accident, scarcely ever happening, except through the horse putting his foot into a burrow, slipping down, &c.); that is a piece of ill-luck which leads him to spin a coin for half-an-hour, to decide what he should do, whether turn to the right hand or left. In all these attempts to decide matters by chance, continual appeals are made to La Virgen and favourite saints, and you will hear fervent prayers, mingled with frightful oaths, at every game at cards. One thing I particularly noticed. Whereas in the States a number of people of the itinerant preacher and missionary class make it their business to look after the interests of the cowboys and ranchmen, I never saw a Catholic priest among the herdsmen. Nobody seems to care a straw for their spiritual or temporal welfare, for they are a heavily tasked and miserably paid body of men; and though their orgies are frightful when they do break out, nine-tenths of their lives are spent in the most monotonous and laborious work in the country.

On the whole I was hospitably treated by these men, and I never felt that I ran any danger in going among them with one or two companions only, though the character they bear is not always of the best, even among their compatriots. But ill reports, like good ones, are not always to be relied on. I remember a friend telling a story in the States, which may or may not be true, for he was a lively, chattering youth, but it will bear repeating. He was travelling on foot to a place he called "Chip City." At the first stoppage his host exclaimed, "What!

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Going to Chip? Why, they killed seventeen men there in a street fight last week." The next day the host varied the story thus, "Going to Chip? Terrible place! Why, they stabbed twelve men to death there a month ago." At the third stoppage it was, "I wouldn't go to Chip if I were you. Worst rowdies in the State. Six weeks ago they shot seven men in cold blood." At the week's end it was, "Not a nice place, Chip! Three months ago they killed two men in the street." Arrived at Chip City, which was a mining place, my friend found that a single man had been killed in fair fight about *two years previously!* "And," added he, "I was six months in the town before I saw a six-shooter out of its pocket." So with these herdsmen. Civilly treated, they are soon friends with any traveller.

Few of them indulge in the pleasure of female society while they are at work on the llanos, though a few have Indian or half-breed women with them. I only saw a single female of Spanish descent the whole of the time I was on the llanos (about ten weeks), and she was a lady who made her home wherever she could find an entertainer. I heard that she had already caused the deaths of two of the herdsmen, these silly fools being idiots enough to fight over her. It is not unusual for the herdsmen to lie out in the open, wrapped in their ponchos, or a coarse blanket. In bad weather they make a rough hut, covered or thatched with palm-leaves, brushwood, or occasionally with turf. Some are content with a simple lean-to, and I have seen these made very neatly with plaited rushes, the Indians, I think, having the credit of being the inventors of this kind of shelter. There is never any kind of furniture in these huts. A few cooking pots, a spare poncho or two, and a bundle of rushes to serve as the bed of some particularly luxurious fellow, comprises all the furnishing I have ever seen. If the herdsman happen to have an Indian wife, she will probably make a few handy utensils, such as are used by her tribe. These

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women get very attached to their masters, and they often pine to death when they are kicked out. "Kicked out," I am sorry to say, is the correct expression. All men of Latin race in these countries seem to esteem coloured women less than dogs and horses, and I could tell stories of fiendish cruelty to both women and brutes that would probably frighten every decent reader from finishing the perusal of this book.

The food of the herdsmen is usually of the coarsest kind. They never have bread; but that is done without by even the well-to-do families in these countries. The chief article of diet is tasajo, that is, strips of meat dried without salt. This tasajo is a very convenient form of food for men who are continually on the move. A large quantity of it can be packed on a horse or mule, and it is easily cooked. It makes an excellent stew, and is certainly very nutritious. The lack of vegetables is the greatest inconvenience to an Englishman or American; but I found a kind of wire-grass an excellent substitute for other greens. A potato I never saw while I was in this country, though I dare say they are to be had in some of the towns. They never find their way to the llanos. Salt may be had at the salinas, which are found here, as they seem to be on all the South American plains, though they are not so numerous or so large as in the southern countries, Argentina, &c. Tasajo, fresh meat, and a kind of pulse form the only variety of food of the herdsmen, except such animals as they occasionally take in hunting, or fruits found by chance. They are inveterate smokers, and drinkers too, when they visit the towns; but there is none of that jovial, good-natured carelessness about them that is the characteristic of the Yankee cowboy, and they are woefully ignorant and superstitious—not above the level of the wild Indians in this respect. There are enormous herds of cattle, horses, and mules in their charge; and breeding the latter animals is one of the features of the country. I saw on the

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llanos some of the finest mules I have ever inspected; and really good animals fetch a higher price than in any other part of South America I have visited. I suppose that the mountainous nature of the inhabited part of the country is the reason that so many mules are bred, these animals being the only ones that are safe to carry man or merchandise over the terrific passes of the Andes.

The llanos, as I have already said, are mostly a dead flat. As you ride over them you seem to be able to see an unlimited distance on every side. As a matter of fact, the actual range of vision does not exceed some four or five miles, as the approach of a horseman or herd of cattle will convince the observer. Over and over again I have watched distant living objects through a glass, and invariably the heads of horsemen and animals are the first to come into view at no greater distance than that I have named. This reminded me so much of the nearing of ships at sea that I am convinced these plains are level as the ocean, and, therefore, like it, subject to the curvature of the earth. It is not possible, on this part of the great plain, to detect the slightest undulation of the ground, and trees are so scarce that you often cannot see so many as half-a-dozen palms showing on the horizon. You may ride thirty or forty miles and not see a tree of any other kind. What few there are, and bushes, occur mostly on the banks of the streams. As to the herbage, it is very luxuriant during the wet season; but during the dry, these great plains are truly a howling wilderness. As on many other South American plains, the grass withers away, and the horses and cattle suffer terribly. Often thirst and hunger cause the deaths of thousands, for during the drought the smaller streams and ponds dry up entirely, and the herds have to continually move from place to place to find water. The dried grass furnishes food, and while they can find this they do fairly well, for no matter how dry it is, it contains much nutriment. Even this, however, fails, and the only resource left is to

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move about in search of those watercourses that are still wet enough to support a scanty herbage. The wet and dry seasons are always spoken of as summer and winter; but this sounds strange to an European's ear in a country where the heat is always great and often oppressive. There are many spots on these llanos where no movement of the air ever takes place, where such a thing as a breeze is utterly unknown; at least, so I was repeatedly assured, and my experience, which was limited, confirms the assertion. At no time or place during the ten weeks I spent here did we experience any wind; never once did we see any of those small whirlwinds which are seldom long absent from any of the earth's great plains, and often have I seen a feather, when blown into the air as a test, find so little current that it remained almost stationary until it slowly floated to the ground.

These plains abound in animal life. I never saw the puma here, nor any species of deer. The latter are not often found in this part of South America away from forests or the immediate neighbourhood of woods. There were a few wild dogs, seen in parties of four to ten, and these are called wolves by the herdsmen. These dogs, in the dark grey of the coat, rounded ears, and other respects, agree with descriptions of *Canis microtis;* and I have no doubt are of that species. There are also armadillos, and many small rodents; but it was the birds that mostly attracted my attention, and first among them, one that I at first mistook, viewed from a distance, for a bustard. It proved remarkably tame, however, and on shooting one I perceived at once that it was a bird of prey. It was, in fact, the caracara, a bird that for the length of its legs and tail is equalled, or exceeded, but by one other bird of prey, the secretary-vulture of South Africa. Like the latter, the caracara is crested, and notwithstanding what the professional naturalists say to the contrary, the two birds are so remarkably alike outwardly that I shall take the liberty of having an opinion of my

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own, and thinking that they are more closely related than modern zoologists admit, especially as many of the older writers considered them allied, and the old writers were not always wrong. The caracaras here were about the size of a small turkey, dark brown in colour, varied with some lighter shades, and a little white on the wings and tail. In a modern Natural History the bird's name is said to be the Brazilian corruption of the native name; but if the words, "ca'ra ca'ra," be quickly uttered, they exactly represent a cry the bird utters when it is angry or disturbed, so there can be no doubt whence the name was derived. The habits of the caracara are those of a vulture, and in this again it resembles the secretary bird. I have never seen it attack any animal or snake, but it devours any other small reptile that comes in its way, particularly the small tortoises that are found in many of the ponds. The bulk of its food is, however, furnished by the dead cows and horses that are always to be found on the llanos. It does not seem to commence to feast on these until they are thoroughly putrid, and no carrion is too revolting to be greedily eaten by it. I did not find the nest of the caracara. The herdsmen say they build in the tallest bushes they can find where these are thickest along the river's brink. I have seen large hawks' nests in such positions which might have been those of caracaras; but the bushes were so terribly thorny that no one would venture up to fetch the eggs. The latter are said to be closely spotted, and blotched with dark red and brown. The caracara of Southern Brazil and Argentina seems to be a local variety of this bird. It is usually seen in parties of four, five, six or eight, and, for some reason which I could not discover, seems to avoid large areas of the llanos. There are none in the northern and north-western parts of the plain; but where they are found they are pretty numerous.

Working back southwards towards the forest region,

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we again came into contact with Indians, but not the same tribe as on the former occasion. These people numbered about sixty, of whom fifteen only were full-grown men, and eleven children. The rest were women and big girls, and I am sorry to say that I witnessed four of the latter sold to the herdsmen, an abominable transaction that did not seem to cause the children themselves any grief or anxiety. I believe that all the Indian women who are found living with the herdsmen are obtained in this way. The price paid for a girl of fourteen or fifteen is a couple of oxen, to which is usually added some trifling articles, as tobacco, or a knife or two; while a bottle of rum or brandy will always command a woman; but this the herdsman will rarely part with, the liquor being too much to his own taste to be got rid of lightly. Girls of the age mentioned are sometimes rather pretty; but they soon lose the little good looks they ever have, most of them becoming mothers by the time they have reached fifteen, and women of thirty or so are worn-out, frightful-looking creatures, the result of neglect, dirt, early maternity, and brutal usage. As I have said before, these women become greatly attached to white men, and I believe it is an ambition among them to be purchased by the herdsmen. At all events they are not only always ready to leave their tribes and friends, but their husbands also, if they get the chance. Marriage amongst these Indians is only another name for purchase, and those of the men who are rich enough buy sometimes as many as six or seven wives, one or more of whom they are generally willing enough to sell. The morality among them is of the lowest order, and shocking vices are quite common, the bounds of consanguinity being scarcely recognised. Certainly uncles marry nieces, and brothers sisters, if even worse and more unnatural connections do not frequently take place. The unfortunate woman has no voice in any transaction, and no choice but to submit to what is required of her.

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When women become old, I fear they are made away with, and the men too, when they are no longer capable of hunting and obtaining their own living. These remarks of course refer to the "wild" Indians. In the towns there are "tame" Indians, who are perhaps greater scoundrels than their compatriots of the forest. They are an idle, drunken, shiftless race of vagabonds, who live by their wits, which, as in other countries, means their crimes.

None of the Indians whom I met with in this part of the country possessed horses, of which, indeed, they can have but little need since they very rarely leave the cover of the forest. But according to the gauchos, it is forbidden, under severe penalties, to provide them with either horses or arms, the object being, of course, to deprive them of two of the most important requisites of aggressive action. They are a miserable people, not at all resembling the Red Men of the North, in size, or physical development, or reverence for old age, which has always been held in high esteem among the aborigines of the northern division of the continent. Moreover, there have not been, for the last two centuries at least, any powerful tribes, such as were found in the North down to some fifty years since. Perhaps owing to the scarcity of big game these southern Indians will eat almost anything, even grubs and snakes; in this resembling the blacks of Australia. Small birds are an important article of diet with them, and they are usually obtained by being knocked down with sticks and stones thrown from the hand. One day I saw a party of Indian boys engaged in this bird-hunting occupation. One of them held an injured bird, which I obtained from him to put out of its misery, as its leg was broken and hanging loose. As I took it in hand it turned up its eye in such an appealing fashion, and uttered so plaintive a "squirk," that I had not the heart to wring its neck. I snipped off the dangling limb, and tried to substitute an artificial

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one, composed of wire and a small quill; but this was so much in the little creature's way that I removed it, and left the bird to its own devices. It soon recovered, and became tame to an unusual degree for a captured bird. It was a thrush of a new species. None of the ornithologists who afterwards saw it—and it was examined by several in the States—could recognise it, or had ever seen one like it before; nor did I see any others of the kind during my stay in the forests of the southern llanos. It is impossible to give an adequate description of it in writing. Generally the plumage was brown and grey, much mottled with a drab shade; and the legs were remarkably long. Its size was about that of a field-fare, and the beak and legs were yellowish. The breast was flecked with chestnut colour.

Jack, as I called him, took kindly to captivity, and before I had him a month would feed from my hand. It was an interesting but pitiful sight to see him stretching his wing to the ground on the lost-leg side to maintain his balance while feeding. In disposition he was lively, frequently uttering a little subdued whistle of several notes—a kind of song, but in a subdued tone. When he wished to attract attention, or in answer to my call, he uttered a much louder note, which is well represented by the word "squirk." He used the same note when he was surprised or frightened, as by the entrance of strangers, to whom he always had an aversion, and would fly to some high point in the room and hide until they retired. When I was reading or writing he would stand on his one leg on the edge of the desk for hours, pluming himself, and twittering gently, and occasionally uttering a squirk to attract my attention. He became so tame that I used to let him fly about the trees in the garden (I am writing of the time after my return to the States), but he never wandered away, and if I was about preferred to perch on my shoulder or somewhere near me. He became just as much attached

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to the lady in whose house I was staying, and would always come to the call of either of us. I used to feed him on a paste in which I mixed chopped meat and suet, and such insects as I could find. He was fond of snails, grubs, and many fruits. About three years after I had him he became blind, so I suppose he was old at the time of his capture, but he lived another two years. His sense of hearing was very acute; and the first sound I would hear on entering the house would be his call of welcome, "Squirk! squirk!" He always disliked being put in his cage, even after he became blind, and used to roost outside on the top of it; but as he evidently felt the colder climate of the States, I made a little box for him, lined with cotton-wool and moss, and in this he would almost bury himself. Though he was blind, he could always fly straight to any one he knew, being evidently guided by the sound of the voice; and his last act was to fly to the shoulders of the lady mentioned above. He had been poorly for several days, refused to eat, and sat moping on the top of his cage. Suddenly he flew straight to the lady's shoulder and immediately fell dead.

The south-east part of the llanos is but little better than a desert. After the wet season the ground is covered with grass, and there are wild flowers that improve the scenery; but these are not at all to be compared to the prairies of the North, nor is the grass so long, never offering any impediment to free riding and walking. Besides the few trees and stunted bushes I have mentioned, the only plants that attain any size are a few cacti, and these are widely scattered, and rarely attain the size they do in other parts of South America. As in other parts of the country, north and south, these are often made use of for the fodder of both horses and cattle; but experience is beginning to teach South American herdsmen in all parts the necessity of making provision for times of scarcity, and lucerne and other

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fodders are now extensively grown for use during the dry season.

All the watercourses and rivers of this region have cut deeply into the soil; and the banks are high but soft and crumbly. Many species of birds that in other parts of the country nest in trees, here breed in holes in the rivers' banks, but at heights that make it difficult to get at the nests. Amongst the birds thus breeding, hawks hold a foremost place; but many of the small birds have adopted similar habits. I think the abundance of snakes on these plains may be partly the cause of this unusual habit; for there are plenty of bushes scattered about such as are usually frequented by small birds. What is still more remarkable is that a duck also uses burrows for nesting purposes. Except the swallows I do not think that any of these birds make their own holes. The hawks enlarge a swallow's burrow, and the ducks use those of a water-rat. The duck of this habit is a diving duck, and that is all I can say about it, except that its Indian name is saiara. I did not ascertain the Spanish designation of this duck, it being found only on the rivers of the extreme south-east of the llanos, which are uninhabited by the whites. There are at least four other species of wild ducks (including a teal), which all breed in the flags and rushes of the shallow ponds. Where these ponds were numerous, and especially in the neighbourhood of the salinas, there were large flocks of a chocolate-brown, and white plover. Sometimes these flocks numbered several thousand birds; and they were as wild and difficult of approach as plover usually are. I made repeated endeavours, but never succeeded in shooting a specimen.

The fish in these rivers were all of species found on the rivers Amazon and Purus, with their tributaries; as might, I think, be expected, seeing that all the streams, together with the Orinoco, are connected, thus making

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Guiana proper an enormous river island, or rather *river continent*, a fact that seems, singularly enough, to have escaped remark by geographers, who invariably style Santa Anna the largest river island in the world, which it certainly is not.

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CHAPTER X

MOUNTAIN AND VALLEY IN CHILI AND PERU

CHILI and Peru! These two countries are, in my opinion, the most enlightened and civilised in South America; and I am not sure that they are not the richest in natural wonders, as they certainly are in material riches, though the time is coming when Brazil will run them close. That they should be more civilised than most other parts of this division of the New World is not so remarkable when we reflect that they, and particularly Peru, are among the longest settled regions, and those to which the old Spaniards devoted the largest share of their attention. Notwithstanding the implied praise of the inhabitants in what I have just said, I am still further of opinion that in the hands of any really progressive people, these two countries would ere this have made themselves among the richest and most important on the earth's surface. Never, anywhere, have I seen such a profusion of mineral wealth as in this mountainous region. The tenth part of the truth has not been revealed in any work on the country that I have seen, and the ignorant people here do not themselves half realise the immensity of their possessions, or the power its development would give them. Over and over again have I thought, "How if the Union Jack floated here!" But I suppose I am beginning to tread on ticklish ground. There is the shade of the late Mr. Monroe frowning in the background; but I cannot help blurting out that I am something of an annexationist.

I spent a longer time in these two countries than in

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any part of South America, and had funds permitted should have remained much longer, not because they are civilised and enlightened countries, but because, in spite of their development, there are still some of the wildest, least known, and most interesting spots to be found here. I thought the mountainous scenery of Ecuador and Granada grand and romantic beyond comparison, but the Andes within the frontiers of Peru exceed anything I saw farther north. I desire to avoid useless repetitions, but it is almost necessary that I should give a rough outline of the majestic range known as the Andes, in order that future description may be thoroughly understood. In the first place it is the longest unbroken range of mountains on the earth's surface by many thousands of miles, extending the whole length of South America from Panama to the Straits of Magellan, and throughout the greater part of this enormous range (some seven thousand miles) it consists of two barriers, or walls, of very great elevation, with an elevated table-land between them. This is the usual description, but I think it is an error to term it a "table-land." It is rather a series of high mountain valleys enclosed by the two ranges. The width of these valleys is never very great; it is often exceedingly narrow, and they are frequently intercepted by cross ranges, which, in some cases, are impassable. From the valleys, therefore, the mountains never have the imposing appearance that they present from the plains eastward, or the coast-line. There are some insignificant plains on the strip of land between the Andes and the Pacific sea-board, but as a rule the ground in that direction is much broken by minor ranges and hills, the Andes often approaching very near the coast-line. The highest summits of the Andes, and of all America, are contained within the limits of Peru. In Northern and Central Peru the range forms several huge knots, or clusters, of rocks, and is there much broader than in any other part. With these few words of introduction I proceed to my narrative.

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I used mules for transport in these countries, as in every other part of South America where I travelled by land, the country, generally, not being suitable for wagon travelling, though wagons with enormous wheels, sometimes nine and ten feet in diameter, are used on the plains of Brazil; but these are only of use locally, and are wretchedly slow in movement, being drawn by draught oxen, a species of transport never in favour with me. In the journey now being described, I never found it necessary to have more than four pack mules with me, in addition to those we rode. A traveller need never be many days away from a neighbourhood where his needs, or, at all events, his necessaries, can be easily supplied. But the changes of temperature are so remarkable, and vary so much according to elevation, that it is necessary he should carry a good supply of spare clothing —an article that of all things is hardest to procure, and the most expensive in these countries. Imagine a region *within the tropics* where the climate is so severe that no vegetation will come to maturity, or even grow! The local idea of extra clothing in these districts is poncho upon poncho, until a man looks like a bundle of merchandise stuck on two legs. These ponchos are simply a square piece of cloth with a round hole cut in the middle to admit the head, the drapery being allowed to hang in its own folds around the shoulders, back, and chest. They are useful, but not so comfortable as a tighter-fitting garment. The gentlemen of the country think a great deal of these ponchos, and pay great prices for those of superfine texture. In fact a good poncho is a mark of quality here, and the man who paid a visit clothed in one of inferior quality would be thought of much the same as the fellow who went to a party in England in his lounge suit. It is a universal garb in South America, worn in all parts, and in the colder parts of Peru I have known a gentleman wear as many as six, one over the other—no inconsiderable weight to carry.

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The general description of the mountains of Ecuador and New Granada would do for those of this region. There are similar stupendous precipices and frightful gaps, crossed by precarious bridges; similar overhanging and impending rocks; and similar aerial pathways creeping along the face of horrible chasms of untold depth. Seldom is it possible to see the bottoms of these chasms, which are more frequently occupied by rushing, roaring cataracts than farther north. The clouds of spray and mist that arise from these furiously rushing streams hide the depths of the gulfs from sight, and you seem to be looking down on a mass of billowy clouds at an immense depth below you. The depth actually is probably never much less than a thousand feet, often six or seven times that depth. I think the rocks are not so jagged and rough as in Granada, and there is not so much volcanic débris visible; but the beauty of the wild flowers here exceeds anything I have ever seen, or attempted to describe. Calceolarias, verbenas, and heliotrope form the bulk of these blossoms here, as elsewhere previously noticed, but they were in much greater perfection and profusion. I saw purses of the calceolaria nearly three inches across, purple and richly spotted, and the mass of yellow in places made the rocks appear like golden mounts. In addition to these flowers, I noticed here, for the first time, vast areas covered with the fuchsia plant, the blossoms of which were so thick that the leaves were scarcely visible. These are the plants that I could recognise; but there were hundreds of kinds that were perfectly new to me, and the delightful odour arising from those of sweet scent kept me continually dreaming of enchanted lands.

Many of the rivers form cañons, which, though not to be compared with those of the Colorado, are gloomy enough, in some cases so deep and narrow that no beam of the sun can penetrate their depths. The streams here rush along with irresistible force, and the noise is often

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deafening in the ears of the traveller for hours at a time. No boat or canoe could possibly live on any part of these streams for a single moment. Many of them leap from heights of twelve to eighteen thousand feet to the level of the plains, or sea, in a course of only a few miles. Although their descents are so rapid, but few waterfalls of magnitude were seen by me, nothing so grand in that way as the splendid scenery of the Yosemite Valley. Small streams, however, have frequently a sheer drop of several hundred feet. Those that receive many checks, or breaks, in their descent struck me as being by far the most picturesque, and many of these were actually dashed into mist before they reached the bottoms of the chasms into which they rushed headlong. Tarns, or mountain lakes, were singularly few for such a region, and always small in size, being mere ponds, though some of them were of very great depth, and full of mountain trout weighing as much as ten or twelve pounds, though the water from which they were taken might not be as many acres in extent. These small lakes were favourite haunts of several species of ducks, two of which were most brilliantly-coloured birds, some others reminding me much of the ornamental mandarin and Muscovy ducks, the latter especially.

In marked contrast to the beautiful flowers and shrub-covered mountain slopes are the bare and rugged rocks of the higher regions, towering into the clouds, the home of everlasting snow and ice. Very few of these higher peaks did I find accessible, although they mostly seemed to have had a volcanic origin, and volcanic peaks are not, as a rule, the most difficult to ascend. At an elevation of 18,000 feet (supposed) I found a remarkable ice cave, which seemed to have been formed from the partial thawing of the ice, and consequent fantastic development of ice figures. The cave was more than 20 feet deep and 12 high, and was one of the handsomest pieces of ice filigree work conceivable—

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a veritable fairy-palace, and although, perhaps, only an object of passing interest, well worth some notice. Many of these high peaks are covered with perpetual snow, and give rise to glacial systems of considerable extent. I should mention that all heights given here are the result of barometrical measurement or observation of the boiling point, and make no pretence of being more than approximately correct. Often, in the higher mountains, it was found almost impossible to heat water so hot that we could not bear our hands in it, and again and again the mercury froze in the barometer. The cold, indeed, was so intense that we ran danger from it on more than one occasion. George, in spite of all my efforts, gave way to sleep, and remained insensible eight hours, so that I despaired of his life. On another occasion I was in a similar plight myself, and only saved by the constancy and determination of a guide.

This guide, poor fellow, suffered from the largest goitre I have ever seen. It hung over his chest in an unsightly mass, and rendered him incapable of laborious work, and he was only too glad to show his gratitude in every possible way in return for the few dollars I could put in his way. In the hopes of ameliorating his condition, I tapped the goitre for him and drew from it more than *three quarts* of fluid, but it quite refilled in three or four days. Although he was a weak man his general health was good, and he had formerly worked in the mines, which, as it is conducted here, is terribly severe labour. These goitres are exceedingly common in these countries, as they are in all mountainous regions. In England they are popularly known as Derbyshire necks, and their origin seems to be connected with the mineral properties of the water in elevated districts, though I do not know that it is clearly traced to this source. In many countries, and notably in Switzerland, this terrible infirmity is generally accompanied by disorder of the mental faculties, but that is rarely the

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case in Peru and Chili. Here women seem to suffer from the disease more frequently than men, but it is rare to see a very young person afflicted with it. I afterwards heard that it often appears in women after the birth of their first child, and, without doubt, any great strain on the constitution, as excessive physical labour, hardship, and want of sufficient good food, is a strong inducing cause. The miners in Chili and Peru are the hardest living labourers in the world. Frequently they go for days without tasting any other food than potatoes, which are far more largely used here than in the northern part of the range. But I will speak of the mines presently.

On the lower slopes of the range and in the sheltered valleys there are luxuriant forests containing some of the largest trees found in South America, which must be of great value for timber. But in no country are there a greater number of trees yielding substances of use for the necessaries or comforts of daily life. There is the tortoise-shell palm, for instance, the leaves of which are so hard, and withal flexible, that combs, spoons, and ornamental articles are made of it in great variety, and are of equally great strength and durability. In a word, the leaf is a very efficient substitute for tortoise-shell, which it much resembles in appearance and otherwise. I was much interested, too, to find a root in use among the Indians for poisoning fish in the water. It is called babasco here, but is precisely similar to the poisonous root which forms one of the principal ingredients in the composition of the celebrated wourali poison of the Guianan Indians. In Guiana it is called hiarri, and according to information I derived from a European botanist, the plant is of the *Loucocorpus* genus. It is a very deadly poison to fish, appearing to act by paralysing their gills. A piece the size of a man's fist is pounded with a stone and thrown into the water. It will cause all the fish within a radius of twenty yards to

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float helpless on the surface of the water, and, of course, they can be easily taken out by hand. In the making of the wourali poison the root is boiled with the other ingredients, but I have already given my opinion of its value in the concoction of that deadly substance.

One of the most interesting plants in this district is, however, the coca (not to be confounded with cocoa), the properties of which are so remarkable that the record of them must necessarily read like a traveller's tale, and I should not venture to describe this plant if I had not personal experience of its powers. I cannot tell to what order it belongs, but it bears fruit five or six times a year (according to the report of the people of the country, which I have no reason to doubt), and both fruit and leaves possess the wonderful sustaining powers for which the shrub is famous. Judging from its appearance I should say that it belongs to the same natural order as the coffee plant, but there is no comparison between the active properties of the two plants. Coca is the most powerful and permanent stimulant known, and many men in this country work hard for days at a stretch with but little other sustenance than that which they obtain from chewing the fruit and leaves of this plant. The effect on the human system is extraordinary. One never feels the least lassitude when under the influence of coca juice, no matter what labour is performed, and the need of other food is not felt. There is no reaction arising from its use, nor other ill effects of any kind. The only effect, other than a beneficial one, that I experienced from its prolonged use was a burning thirst, but after a time this became less noticeable, and at length I could go all day without either food or drink, and experience no inconvenience. The Peruvians perform journeys of two or three days without troubling to eat, unless food comes in their way, but muleteers and others who are constantly travelling make it a rule to take a little food (fruit or dried meat), every day. From this I surmise

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that coca is not a substitute for food, but simply a stimulant. It is, however, certainly a marvellous and invaluable agent to travellers in desert places, sustaining health and strength where both would fail from sheer want of nourishment; and in any case far less than the usual quantity of food is either required or desired. While in Northern Peru I habitually used the leaves in lieu of tea, a common practice of the country, and I cannot speak too highly of the plant as a preservative of health and strength.

The forests on the lower slopes of the Peruvian Andes are very dense, and matted together with closely growing cane-brakes, which often render them impenetrable without resort to the axe. A sort of cutlass, with a short, broad blade, is used here, as in other parts of South America, for clearing away the brushwood, and, where the latter is light, is more effective than an axe. On the upper borders of these forests, where the rocks are lightly clothed with vegetation, a considerable number of cacti make their appearance; the angular-branched, candelabrum-like one, which is so often represented in pictures of South American scenery, often growing to a great size; and I was surprised to find several species of small birds, and a few of the larger ones, making their nests on its singular-looking branches. These nests, exposed as they seem, are well protected, since no animal can climb the cactus. Bird and animal life in all its forms is abundant here, perhaps the most remarkable being the spectacled bear, the only animal of the kind found in South America, and even this is very local, and certainly not abundant. It is not bigger than a mastiff dog, though heavier, and the markings of the face are so peculiar, and give the animal so comical an appearance, that it is almost impossible to look at it without a smile. It is a harmless and timid little creature, though when attacked by dogs it will fight bravely for its existence. When suddenly surprised it has a habit of sitting

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up on its hind-quarters and staring motionless at the intruder, with an air of semi-comical pensiveness that, to my mind, was most amusing. The animal does not haunt the forest, nor is it found, except perhaps accidentally, among the bare rocks. It seems to prefer the region of scanty vegetation, ranging between some ten and fifteen thousand feet above sea-level, and is most abundant about the district where the Andes form a ganglion (if I may so term it) of rocks, of which Cuzco is about the centre. It is found much north of Cuzco, but not more than two hundred miles southward. At least I could never find it in Southern Peru, nor in any part of the Chilian Andes, and it is certainly rare on any but the eastern slopes, even in Peru. It is nearly always found in pairs, which pairs occasionally have a cub with them. Contrary to the habits of most bears, the male does not seem to separate from the female when she has a cub; and from the circumstance that I always found a pair together, and that a pair never had more than one cub (sometimes more than half-grown) with them, I have thought it probable that they pair for life, and have but one young one at a birth. They eat fruits and berries largely, and are not averse to carrion; and, from the circumstance that I found one with a large fish in its jaws, I thought it possible that they also fish. The fish, however, may have been captured by an otter. It is as well to avoid hasty conclusions, which are responsible for many errors in natural history, as in other things. If not attacked, these bears, after staring at you for a time, beat a hasty retreat, moving with considerable speed. Two large dogs are more than a match for the male bear, and when pulled down the latter utters a loud cry like a hoarse scream. I have seen several so destroyed, but I do not myself use dogs for attacking wild animals. The female is fiercer than the male when defending her cub; nevertheless, the male does not forsake his family, and if they succeed in getting away, he covers their retreat, and clearly tries to

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lead the pursuer in a wrong direction. The spectacled bear is of a black colour, and the eyes are nearly encircled by greyish rings, spectacles, as they are called, giving the animal a most grotesque appearance. One that I saw tamed in the possession of a Peruvian farmer was very docile, and the children played with it as with a dog, and it permitted strangers to handle it. Like other bears, it was exceedingly fond of all kinds of sweet articles of food.

In the forests there are neither sloths nor monkeys. These two classes of animals appear to be confined in South America to the forests of the plains and valleys; at all events, I never met with them at any considerable elevation; and though I learn that monkeys, in India, are found at a height of many thousand feet in the Himalayas, their American relatives do not imitate them, and if they are found anywhere on the slopes of the Andes, it is certainly at no great height. I have searched very carefully for both sloths and monkeys, and never found either within what I call the limit of the Andes region.

Birds, on the contrary, are very abundant in the districts lying between Pasco and Cuzco, especially in the western portions. Here I found in great abundance a very beautiful bird, the painted snipe, distinguished by its splendid spotted plumage, and two other snipe-like birds, which, however, I subsequently learned to be woodcocks. Wild ducks and teal swarm on some of the marshes, and here, to my astonishment, I found a seagull, or tern, breeding in colonies. The nests were placed in tussocks of reeds or grass, and were difficult to get at in the shallow water. All those I succeeded in reaching contained young birds, in most cases old enough to make their escape. The nearest point on the sea-coast must have been at least three hundred miles distant in a straight line, yet these birds were here in thousands.

One of the most interesting spots in this region is the

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town of Pasco. Its inhabitants claim that it is the highest town in the world, being situated more than 16,000 English feet above sea-level. It appeared to me to be a cluster of mine-shafts, with houses gathered round them; but, I suppose, I must be careful how I speak of the place since it is not only dubbed a "city," but is also the capital of the province of Junin. The population is not very fixed, consisting mostly of miners, and probably never exceeds 10,000 or 11,000, while it often sinks to 3000. It is a desolate spot, and many of the pit-mouths may be said to be in the middle of the street, seeing that shops and dwelling-houses are within a few yards of them. The atmosphere is always too cold for vegetation of any kind to prosper, and is often exceedingly severe, freezing even alcohol. The miners told me that they were often glad to hasten into the mines to escape from the excessive cold of the upper air.

None of the mines seem to be very deep. One that I descended might be some five or six hundred feet, and I am not likely to soon forget my experience in making the descent, which was by means of a series of ladders. To descend, and then climb six hundred feet of ladder is an experience that may seem no great feat; but it gave me an attack of lumbago that I did not recover for a week. The miners carry huge loads of ore up these ladders, which it is a ticklish business to ascend unladen, at least so I thought it, and I was disposed to give myself no little credit for running the risk of breaking my neck just for the sight of a silver-mine; but after I had witnessed the men at work, my feelings underwent a revulsion. They carry loads of about two hundred-weight up these ladders. The load of ore is placed in a sort of kipp, or basket, and supported on the back by means of straps over the shoulders and round the brow, and the man has both hands at liberty to help himself up the ladders. The latter are not placed contiguous, but there

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are a series of slopes each terminated by a ladder, and it takes a man from twenty-five to thirty minutes to reach the top, which he does in a state of great exhaustion. As a rule, the miners make twelve journeys up and down per day, that being the regulation number. Dreadful accidents sometimes occur through the men missing their footing and falling with their loads. They are poorly paid and live very hardly, and they break down in health early in life; yet they are cheerful, and among the civilest and most obliging men I met with in South America.

The silver is found in conjunction with iron, and very primitive methods of smelting are in vogue. Though there is plenty of coal, of a sort, close at hand, such materials as dried dung, turf, and wood from the forests on the slopes of the mountains far below, are used for the necessary works. The Peruvians seem to prefer to smelt their own silver ore, though they are such poor hands at the work; but copper and iron ore is sent in large quantities to England to be dealt with in our more skilful methods. Most of the mines here at Pasco are of no great depth, that which I descended being one of the deepest; and many of the shafts which have been abandoned are now full of water, and as they are not fenced round, they are a source of great danger to the unwary passenger. There are no foul gases in any of the mines; but there is another, though different, source of danger—earthquakes, which are sometimes terribly destructive. Some seventeen years ago before my visit (in 1868), Pasco was almost destroyed by one which did great damage throughout the province or department. Some of the old miners, however, told me that the shock was not nearly so perceptible in the mines as it was in the open air.

The country around Pasco is very desolate, yet it swarms with rats and mice, and also a small kind of fox and a few guanacos; but the latter are much persecuted by the miners, to whom they supply a welcome store of

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flesh. As soon as news of a guanaco having been seen is received, away goes every fellow who has nothing else to do, and the guanaco is bagged before you can say "Jack Robinson." In speaking of rats and mice I am referring to quite a little host of small rodents, many of which, strictly speaking, may not belong to the particular families I have named. My meaning is that they were mouse-like in general appearance, but I am unable to specifically name them.

Passing on to Chili, it is my intention to dwell but slightly on a few of the objects of interest in that beautiful country. One of the circumstances that most struck me in travelling here and in portions of Southern Peru was the similarity of the crops to those that I had been accustomed to see in the States and in Europe. Maize, wheat, oats, barley, and potatoes were quite common crops, while those usually found growing in semi-tropical countries were nowhere noticed; and although grapes and oranges were abundant in certain districts, orchards of pears and apples were still more abundant, whitening the land when in blossom, and frequently reminding one of the lovely vales of Gloucestershire and Worcestershire in spring time. Nearly all the fruits usually found in a temperate clime are grown in Southern Peru and in Chili. The great want of these countries seems to be water. I have frequently heard it asserted by the planters that the only reason of their failure to bring to perfection the crops that might be expected in such a latitude is a want of sufficient moisture. This is an uncommon failure in South America, which, taken as a whole, is the most liberally watered of the world's great divisions. Some districts of Chili and Peru are, however, the most sterile spots I have ever seen. There are spots where a drop of rain has never been known to fall, and where there is no dew at night. They are, consequently, absolutely destitute of vegetation. I have examined the ground in such spots through a magnifying glass, and could not find a

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trace of the most insignificant fungus or moss; in fact, they are desolate seas of continually shifting sand, with here and there a jagged mass of rock as the only break to the terrible monotony of the landscape. In places the ground is stony, but the shifting sand is never absent. These districts are always of some elevation, forming ridges between the narrow fertile valleys. There is no form of animal life in these deserts, there being nothing to support even an insect. One which I crossed south of Mara some thirty miles, was at least sixty miles across, and there was neither road nor track of any kind. In fact, I could not find any one who had ever attempted to enter it. "With what object?" they all exclaimed, when I asked men if they had ever crossed these terrible deserts. We had to take water on mules, and even fuel to make a fire, as I intended to spend at least one night in this desolate place. The ground was uneven, and composed of sand mixed with a few small rough stones, not pebbles, these being more plentiful in some spots than in others. The sand had been driven by the winds into dunes, some of which were twenty feet high; and even as we rode, the breeze, which was certainly not very strong and somewhat fitful, raised clouds of fine sand, causing us considerable discomfort. The feet of the mules sank into the loose sand, and progress was slow. It took us sixty-three hours to travel about eighty miles, including, of course, the time of rest; and the whole of that distance not a single blade of grass was seen, nor did we find any living creature whatsoever on the ground, though a few birds passed overhead, evidently flying across the desert to their feeding grounds. These birds were hawks, one eagle (apparently), and several condors. Also, four sea-gulls were seen flying across together. It is not an uncommon thing to see sea-gulls much farther inland than this; in fact, I strongly think that they sometimes take journeys right across the continent from ocean to ocean.

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We spent two nights in the desert, and suffered much from the bitter cold (the elevation I believed to be 8000 or 9000 feet), from which we had but a very imperfect shelter, and all the fuel we had was exhausted the first night. The wind increased greatly after sunset, and blew steadily all night, covering us with sand dust as we lay on the ground. A person or horse dying here would probably be completely buried in two or three days. The very rocks are hidden under the sand drifts, and the lee side of such rocks as project above the plain we found to be exceedingly dangerous places, the loose sand being there drifted so deep that mules and men sank as in a morass. We had several narrow escapes.

This desert, so far as we examined it, is bounded on all sides by ragged rocks, and begins and ends abruptly. The country just beyond the bounds is tolerably fertile; but in the desert itself, as I have said, there is not the smallest lichen or moss to be found, nor in animal life so much as a fly or ant. The sand is constantly in motion and shifting from place to place, and though on this occasion we witnessed no storm in the desert, we did so on a subsequent occasion, and it was one of the most curious of sights, not without great grandeur also. A series of whirlwinds prevailed, carrying up the sand in huge columns, which became tinted by reflection, as I suppose, many different hues—red, violet, purple, and dark colour, after presenting a beautiful appearance as the columns moved and changed. These wind and sand storms, which, if not of frequent occurrence, are at least not rare, are very dangerous. Man and beast, caught where shelter is not obtainable, run the greatest risk of being overwhelmed and buried alive. Such accidents do not often occur, simply because the deserts are rarely crossed. There is nothing but curiosity to attract men to their desolation, and the men of this country are not given to curiosity in such matters as this. Probably the desert I have just described had not been entered for

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a hundred years, and will go undisturbed for a hundred more, especially as it lies far out of the way of all usual routes. Probably such spots will remain deserts to the end of the world. It is difficult to see how they can be reclaimed. No grass can grow here to bind the soil together, for there is no moisture, nor apparent possibility of irrigation. Without this the sand will always remain, so to speak, a floating and shifting soil. All along this range there are similar desert spots to be found; and, though of less elevation, the Desert of Altacama, in Chili, is equally barren. I could find neither animal nor vegetable life when fairly within its bounds; but I have thought fit to describe the mountain desert rather than so well-known a spot as Altacama.

The above is not the only one of these deserts that I examined. As they are all little or quite unknown spots, they had a fascination for me, and I rode over several of them in the hope of making some discovery. The description of one answers for that of all. There can be no more desolate spots on earth, and their examination soon became too monotonous to be further indulged in. In one only did I find a drop of water. A small stream sprang from beneath a great rock, and after a course of ten or twelve miles lost itself in the sands. A strip of ground, however, for the distance named along its course, was converted by the moisture into a fertile and beautiful oasis. This was fully twenty miles within the borders of the desert; it would seem, therefore, that the seeds of grasses, plants, and trees are scattered about the sands, or driven thither by the winds; and, what is more, this oasis was inhabited by an abundant animal life. Our little friends the rodents were here in strong force, as they are everywhere in these countries where a few seeds can be found to support them. There were no fewer than nine species in this narrow territory. How did they get hither? Did they, guided by some subtle instinct, cross the desert to this spot, or have they been here from

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time immemorial? Flies, beetles, and insects were here in myriads, besides spiders and centipedes. Many small birds harboured and bred here, and their enemies the hawks had found them out. As the belt of verdure did not extend on either bank of the stream farther than some two hundred yards, it is simply marvellous that there should be so much life in a territory of at most three or four square miles. Birds, I can understand, might discover the spot when flying over the desert. But insects! It is hardly probable that their eggs or larvæ could be brought there by the birds, and still more improbable that they themselves should fly twenty miles out into the desert in search of a place to pitch. It is also surprising what a host of creatures a little vegetation will support. I noticed this on all parts of the mountains. A few blades of grass, a small patch of moss-covered rock, a cactus or two are the sure harbingers of animal life in some form; and where there is one kind of animal, there is sure to be another to prey on it.

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CHAPTER XI

A MISCELLANEOUS CHAPTER — BOLIVIA — THE RIO JANEIRO DISTRICT — CONCLUDING ODDS AND ENDS

We are nearing the end of our journey. I am not anxious to lay down the pen; but it is a serious question with me whether I am justified in carrying the reader farther. Most of the ground that remains to be treated of consists of the pampas of Argentina, and Buenos Ayres, and Patagonia, and these are regions which it seems to me have been so frequently dealt with by the ablest of travellers and naturalists that I do not feel inclined to add my quota to their already exhaustive work. I have come to the conclusion that I have nothing new to write about these particularly well-known parts of South America. Perhaps the same might be said of other parts of the continent; but I do not think so. If those countries I have already treated of have been as much written about as the great plains of the South-East, the books are unknown to me, and that is my excuse for having written so much about what should be by this time well-known portions of the world's surface. With regard to the west coast it has, no doubt, been much visited and much written about, but I have to a great extent avoided beaten paths, and confined myself to what this book professes to treat of—the wildernesses. At the time I made my journey up the Purus, that river was almost unknown. Now Brazil, at least, if not other states, have had shallow-draught gunboats built for the express purpose of exploring the great and little-known rivers of their

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immense territories. What I have written I have written; but I realise that it would probably have excited more interest, and been considered of more value, if it had been given to the public soon after the journeys took place. But that is just the rub. I never intended to give my friends, the critics, the chance to flay, baste, roast, and devour me to the secret joy of all my enemies until a year ago. Why have I changed my mind now, so long after? Ah! why? I will give you the irritating answer that leads to so many school fights: "Never mind!" Few schoolboys there are that have not had a black eye or sanguineferous nose, as a result of indulgence in that most provocative formula, irritatingly repeated—"Never mind!" But do not misunderstand me. The last thought and desire of my mind is to be provocative, and as to the critics of the first part of this work, they have treated me so handsomely that they deserve, and have, my hearty thanks. I have only one fault to find with them, and that is not a serious one. They have left me nothing to grumble about. I hope they will be equally generous this time also.

I am a man of big conceptions whether I always carry them out or not, and I intended to ride right across the South American Continent, from west to east. That audacious resolution I actually started to put in execution; but I soon found that I had jotted up the bill on quite a different scale of charges to mine host, and I began to see that I might have some difficulty in paying the piper. In the first place I found I was as ignorant as any school miss of the geography of Bolivia. Bolivia a hilly country! Why, I found it positively mountainous where I expected to find it flat! The result of insufficient inquiry. But I am obstinate, and, if I may, just for once, indulge in a little boast, not altogether devoid of pluck, and I think I may have pushed through had not a fresh disaster overtaken me. I tumbled off my horse with Yellow Jack, or some similar "drattedness," as my

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cowboy friends would say, and there I was, fairly laid on my back for a month or two. That settled the grand continental route.

Among the men in my service at this time was a middle-aged Araucanian Indian, a Roman Catholic, who had been christened Tomaso Chachi; and who, years before, had been a personal attendant of a Señor Antoine Tounens, "king of Araucania," of whom he was never tired of talking and telling anecdotes. This Indian I preferred to call, in my own tongue, plain "Tom," a name to which he took most readily; and he was a most faithful and valuable servant, which is saying a great deal for an Indian. He readily undertook to cross the continent with me on my undertaking to send him back to his own country, but that journey did not come off.

Tom, and Tom's compatriots, were of great interest to me as settling the question of the ancient civilised nations of South America. Until I came among the Araucanians I always believed that those nations were a distinct race from the present Indians. But that is clearly not the case. The Araucanians are Indians pure and simple, but they are a very superior tribe—semi-civilised in fact. Though they are now nominally under the Government of Chili, they in reality have never been subjugated by the Spaniards, but from the days of Pizarro and his lieutenants downwards have maintained their independence. They are now (1885–86) governed by their own laws; and are quite different in set-up, appearance, manners, and habits from the other Indians, though evidently of the same stock. They are remarkable for cleanliness, in this matter being far in advance of their so-called masters, the Spaniards; and are a fine, martial-looking body of men. They are quite as proud, and resentful of dishonour, as the Red Men of the North, and quite as warlike in disposition; and, like the Red Indians, are open, free, and generous; and form strong attachments to those who gain their confidence, and equally

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strong hatred towards those who do them wrong. They have coarse, black hair, and large, wide-spread noses; otherwise they have pleasing features; and the women are among the best-looking in the entire country. They do not marry at so early an age as other Indians, and they do not seem to be ever ill-treated by their husbands. The morals of these people are far above those of the other tribes, and of the Spaniards; and (a telling criterion in judging a people) they are fond of their children, and respectful to old age. They are fixed in habitation, and many of them are converted to Roman Catholicism. Their own religion is much like that of the Red Indians. They acknowledge a "spirit," who is the author of, and master over all, to whom, on occasions of public importance, they offer burnt offerings, consisting of domestic animals and the fruits of the earth; but there is no regular priesthood. There are a sort of mountebanks among them, who sell nostrums for the cure of disease; and also a class of regular practitioners, who use certain recognised remedies in cases of sickness. In addition to these there are also witch-doctors, but all these men are quite distinct from the pee-ay-men of the savages. There is a fourth class of medical men—the surgeons and bone-setters—who are quite skilful in dealing with all sorts of wounds and fractures. There is yet another class, the anatomists, who dissect bodies for the purpose of studying diseases, but do not themselves practise. Such a minute subdivision of a single profession seems confusing, but in all countries medicine and quackery have been much intermixed down to a quite recent date; and the professions mentioned have been recognised among the Araucanians from centuries before the conquest of America. The gift of the orator is much prized among them; and they have professional speakers, poets, and tale-tellers. I should say, also, that they have quite as good a knowledge of astronomy as the majority of the nations of antiquity; and their division of the year is

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tolerably correct. They divide it into twelve months, eleven of thirty days each, and one of thirty-five. The last may be either the first or the last of the year. The day is divided into twelve hours, instead of twenty-four as with us; so their hour is equal to two of ours. As with other Indians, a man may have as many wives as he can purchase; but they abhor the idea of selling a wife, which is a common iniquity among the savage Indians. The women are rarely unfaithful to their husbands, and there are very few half-breeds among them. They are an exceedingly brave race of men, and have never been known to flinch before the musketry of the Spaniards; while on several occasions, though unprovided with fire-arms themselves, they have charged right up to the muzzles of cannon; and, most uncommon in Indian races, they are merciful to a conquered foe. The system of national government is based upon tradition; and most crimes are expiated by compensating the injured party. Every man is absolute law-giver in his own family, with power of life and death; but so far from this leading to oppression and cruelty, it is almost unknown for a man to strike a child. A blow degrades, in their opinion; and the women are certainly not ill-used. The Jesuit priests deserve the highest praise for what they have done for these people. They have embodied and fixed their language, and taught them to read and write; and the Araucanians are quite as well educated, to say the least of it, as their neighbours the Spaniards, and quite as intelligent; while in morals and cleanliness they are far before them, as they are in truthfulness and honour.

Araucania is situated about the middle of Chili, a thousand miles (roughly speaking) south of Bolivia. It extends nearly two hundred miles along the coast, and a hundred and fifty inland, and contains about 30,000 square miles, with an Indian population said to number a quarter of a million. At the time of my visit there

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were but few of the Spanish descendants among them, though the policy of the government was to induce settlers to establish themselves there as the surest and safest way of bringing the country under entire subjugation. The Indians are industrious and persevering, which the Spaniards are not; and, on the whole, I should say they are a prosperous race. They have been guilty, however, in past days of making inroads into the neighbouring State of Argentina; and there has been some fighting of a severe kind, for the Spanish of the last-named country gave no quarter, and even women and children were butchered. With strangers the Araucanians are somewhat distant in manner, if not haughty; but this reserve wears off when you become better acquainted with them. They also treat any other European with more respect than they give to a Spaniard. The caciques always show that reserve so common in all men holding office.

The Antoine Tounens mentioned above was an extraordinary character. He was a French lawyer, and his full name seems to have been Orelie Antoine Tounens; but those among the Indians and Spaniards who spoke of him to me always called him Antoine. He seems to have gone to Chili as an adventurer, and by some means ingratiated himself with the Araucanian caciques. The consequence was that he proclaimed Araucania a kingdom, with himself as king. The town of Los Angeles was made the capital, and a regular government instituted. This was in 1860; and for sixteen months Tounens reigned undisturbed, exercising all the functions of a sovereign prince, and organising the country, erecting fortifications, &c. At length he was betrayed while travelling to a party of Chilian soldiers, seized, and imprisoned; and down came monsieur's kingdom like a house of cards.

When I left the country two of the Indians, Tom and a young nephew of his, willingly went with me,

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the understanding being that I should send them back at the expiration of a stated period. The faithfulness of their disposition may be best learned from the fact that they remained with me, carefully tending me in turn with George during a long illness, the greater part of the time I being either delirious or incapable of knowing what was taking place around me.

This unexpected illness spoilt my visit to Bolivia, and caused a complete change of plans. I was advised to go to sea, and accordingly went by sailing vessel to Rio de Janeiro, that I might have the benefit of a prolonged voyage. My experiences of Bolivia were therefore limited; but I may say that the people of this most wretchedly governed state were about the haughtiest and most impudent robbers I met with anywhere out of Mexico. Like the people of that country, they seemed to have a particular antipathy to Englishmen. I am proud of my nationality, and make no attempt to conceal it anywhere; but as a rule I found it pay best to let South Americans think I was a Yank. It cost me at least double the amount to live in Bolivia that it did in any other part of the continent; and I was perpetually being reminded, by unexpected preposterous demands, of my first experiences in New York City, which were amusing enough to be remembered to this day. I had hired a cab to take myself, and a by no means heavy "baggage," to an hotel at no great distance from the docks; and, like Mr. Pickwick on a similar occasion, had been rubbing my nose with the silver coin which I supposed would pay the fare. "Four dollars," says Jehu. I looked at the fellow in blank amazement. "Sixteen bob for driving a mile?"—"That's about the English for it," says Jehu. "It's an imposition," I exclaimed. "I guess you'll find we don't work for nothing in this country," retorted Jehu; and I guess I did; and they don't work for nothing in Bolivia either. The little they do there has to be well paid for.

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Very many of the birds and mammals found in South America are represented in Bolivia, though, unfortunately, I could not pay that attention to the zoology of the country which I wished to do. I noticed particularly that there are more birds here of similar species with European forms than I noticed elsewhere. Although some of these birds do, no doubt, differ from specimens procured in Europe, the resemblance is worthy of notice. This is particularly the case with birds of prey, and ducks and plover. Of the latter I saw specimens which I should certainly describe as resembling the stone-curlew, avocet, and stilt-plover, while the peregrine falcon, and several other allied hawks, seemed to me to be absolutely identical with European forms.

Next to birds, batrachians seemed to be most prominent by reason of numbers of species, as well as abundance of individuals; and I was more than once reminded of Mungo Park's story of having to take the branch of a tree and beat away the frogs from the edge of the water before his horse could drink. Many of the small pools in the neighbourhood of Colincho, for instance, were simply black with frogs, sitting, and floating, with just their heads poked above the surface of the water. In the marshes which I found in the valleys in this neighbourhood, frogs are so numerous that in my opinion they could profitably be used for manure in the same way as fish too often are, and much more justifiably. The fish are valuable for human food; the frogs are not. In some marshes hundreds of cartloads could easily be obtained; needless to say, therefore, that the frogs are to be numbered by millions. Most of them are toad-like creatures of very different appearance and habits to European frogs. They are aggressive if disturbed, and bite furiously at the stick with which you push them, and will even hop after you, snapping their jaws. These creatures fulfil the conditions laid down by modern naturalists to constitute a frog—that is, they are furnished with teeth

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and tongues, but in all outward aspects they resemble toads. They usually crawl; they cannot leap, though they can progress by a series of short hops. They are very revolting-looking creatures, and are mostly of the species known as South American horned frogs. The common horned frog of Brazil is among them, but the most abundant is one more nearly resembling the escuerzo of Argentina, of which it is probably a variety. The colour is a dull greenish, with darker mottlings and spots of faded red and yellow. It is very voracious, preying mostly, I think, on other frogs and small fish; but one which I kept in captivity killed and ate a family of young mice, and would devour pieces of raw meat with avidity, though it refused that which had been cooked.

After lying ill with yellow fever for some weeks at San Christoval, I was taken by George to Puerto de la Mer, *via* San Pedro de Atacama, and shipped on board an American sailing barque. Sick, almost unto death, the horrors of that journey down to the sea-coast are among the worst I have ever endured. Often I entreated to be permitted to throw myself to the ground and die in peace. I was just conscious enough to suffer. The road, under any circumstances, is a trying one. I had nearly said that a journey across the worst of the Alps passes would be child's play to this route; and I am not sure that I should exaggerate if I did say so. That I did not perish under the torture of it is proof, I think, that a man cannot die before an appointed time. A week's rest on board restored me in some measure, but the long voyage did not have the desired effect.

During the voyage round to Rio I had the gratification of seeing a good deal of the renowned flying-fish, and seeing for myself how correct, or otherwise, are the commonly given accounts of its movements through the air. That it only leaves the water when pursued by its enemies may be correct; but I think otherwise. It certainly seemed to me to more often leap from the water

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in sport than for any other reason. Its course through the air without a break is stated by many different authorities to be about three hundred yards; and the majority of them say that it has no power to change its direction during its flight, or prolong it by any movement of the wing-fins. I am satisfied that the fish can continue in the air until it is so dry that it must dip in the water to save its life. The converse of a human diver, who must come to the surface every minute or so to breathe. These dips of the fish have nothing to do with its flight; if it could be wetted in mid-air its flight could be continued for a considerable time; for it is a *flight*, not a leap, as so many writers (the most of whom have probably never seen the fish alive) have asserted. The fish does not flap its fins as a bird does its wings, but it vibrates them with a tremulous motion, and it is this vibration that enables it to keep up. I am so sure of this, after what I have seen, that no amount of evidence to the contrary would influence my opinion. The professional naturalist too often interprets the actions and habits of animals partly according to set rules which he is anxious not to have set aside, and therefore does not give due weight to the opinions of men whom he chooses to think unscientific. Personally I have quite enough science to convince me that of all science that termed "natural science" is the most liable to error. It is clear to me that the majority of its votaries have no clear comprehension of the difference between a theory and a doctrine, or of the fact that neither the one nor the other can be permitted to supersede common-sense, which I have heard more than once is a very uncommon thing. To speak of a little creature, not so large as a full-grown herring, *leaping* three hundred yards, and never rising twenty feet above the surface of the sea during that leap, is language you will not find in the mouth of a man who has carefully watched these fish in their native haunts.

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As a matter of fact the flying-fish often exceeds three hundred yards in one flight, and with one or two momentary dips in the water they travel nearly, or perhaps quite, half a mile in what may be justly called a single flight. They do not often rise more than twenty feet above the sea (S. American species, remember), but one which struck the shrouds of our ship did so at a greater height than thirty feet above the water. They have the power to make a tolerably sharp turn of at least sixty degrees in mid-flight, and they appear to do this by means of a motion of the tail. I believe that the fish can rise from the sea, or drop, when it chooses, and when they drop on the deck of a ship it appears to be the result of accident through striking some part of the rigging. So far as I could ascertain, that was the case in every instance of those that came aboard our ship during this voyage, and they numbered over forty. I still have the wing-fins of one of the largest specimens by me, and I find that they do not measure four square inches of superficial surface each. It is very remarkable, therefore, that the fish can prolong its flight for so great a distance as three hundred yards at least. The fish are delicious eating, and were eagerly sought after by the sailors, who knocked down several which would have otherwise cleared the ship. All my efforts to catch them by means of a small baited hook were fruitless. We were two days passing through a shoal of very great numbers. No one on board had ever before seen so many at one time. They had certainly enemies in the sea, which were seen to seize many as they dropped back into the sea.

Rio de Janeiro is a fine harbour and a beautiful one; and I suppose everybody who has ever written a line about the place has said as much; but the first impression it made on my mind was that it was the hottest and most stinking hole I had been in in all America. "Hole" is scarcely a misnomer, for it is shut in by high hills on every side; and every hill seemed to be crowned by either

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a fort or a church. Many of the latter were in ruins, or something very nearly approaching it, and Rio is certainly one of the least priest-ridden cities in all South America. The people are so little intolerant of Protestants that I could scarcely believe I was in a Catholic city, and I believe that a Hot-gospeller might have ranted in the streets with but little fear of the consequences.

The stench at Rio arises from the many manufactories, many of which carry on unsavoury trades, as hide-curing and tallow-boiling; but these trades are enriching the people, and it is a highly prosperous place, and so cosmopolitan that in my opinion it will soon become the New York of South America. Most of the inhabitants already use the Yankee pronunciation of the city's name, and call it Rio, giving the true Anglican sound to the "i." Need I say that the city was originally founded by the French, and called San Sebastian? But my business is not to describe cities, and I made no longer stay in this one than I could help; yet I am bound to say that, once fairly outside the bounds of the brick and stone, I do not know any large city with more beautiful environs. And I was bound to remain within these environs: for the long sea-voyage (I came hither in a sailing vessel) did not pull me together as was expected; and I was obliged to abandon the intention of further extensive journeys to the interior of Brazil. I was surprised to find so much of the natural beauty of the country undisturbed quite close to the city. The marvellously quick growth of the vegetation has much to do with this.

The mountains which surround Rio appear to be all of granite formation—certainly all those which I closely examined are; and most of them are wooded to their very summits. Palms and agaves are luxuriant, and often of great size, almost everywhere in this district, and nowhere more so than on the slopes of Corcovado, which seems to be the highest mountain in the neighbourhood, and the one from which the best view of the city is

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obtainable. I made it to be 2631 feet above the level of the bay, having measured it for myself, as Portuguese measurement seems to be somewhat uncertain, to say the least of it. They have extraordinary ideas of the extent of the bay and the heights of the mountains. The appearance of the city and suburbs from the top of Corcovado is simply enchanting. From none of the other mountains do you get so fine a view of the country and bay, and the air at this elevation is deliciously balmy and seductive. Many of the mountains have remarkable outlines. They are huge isolated rocks rather than mountains, with steep, abrupt sides; yet few of them are difficult of ascent, and if good paths were made in the place of the wretched tracks which exist, perhaps none of them would present even so great difficulties as Snowdon. A great part of the water supply of Rio is obtained from Corcovado, and there is a very remarkable aqueduct, built in the old Roman fashion, running from the mountain to the centre of the town. Next to Corcovado, perhaps Gavin is the most noteworthy mountain. It is called by the Portuguese "Topsail Mountain," from its great resemblance to that part of a ship's gear; but the English and Yanks call it "Table Mountain." As the names suggest, it is flat-topped. English, Yankees, Germans, and French, are in strong force in Rio, and most of the trades and businesses are in their hands. I am sorry to have to add that the shops of my own countrymen are not by any means the places where the customer is most likely to be well served. But for knavery and want of politeness the German runs the Britisher pretty close. Monsieur is the man for sound manners and sound wares. In politeness he is equalled by the Rio Brazilian, who, however, is no business man. The custom here is for the men to saunter about the streets and plazas in full evening dress, with a snuff-box in their hand, and they invariably offer a pinch every time they meet you, which you must take with your

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left-hand finger and thumb if you do not wish to be considered an insufferably vulgar fellow. The ladies—the darlings! What eyes! and how they use them! If you are not made of cast iron, you will have to kneel to Venus here. Hair, eyes, and bewitching forms, with grace divine—that summarises your Rio lady. She is rarely beautiful in the usual sense of the word; not often pretty even, and she has a deplorable complexion; but she is a most lovable little siren. She has the good sense, and the good breeding (unique in my experience of South America), not to know that you are "a heretic"; and it strikes me that she cares mighty little about it. I ought to have finished my yarn before I got to Rio. I always get sentimental when I think of Rio.

The people of Rio are a musical race; they sing and play excellently, and the orchestra at the opera-house (nearly all native talent) is one of the best I have heard in any country. The people at large, and especially the *women*, are much given to whistling as they go about their business, and they do so so well that at first I often mistook the sound for that of a person playing the flute. The military bands are also good—quite equal to the average European military bands.

It may be of interest to mention that many fancy handicrafts are carried on in Rio, notably those of ornamental jewellers; and this seems to be the one trade in which the Brazilians excel, although many of the practical workers are men of colour. The silver filigree work of these mechanics, I should think, is without rival, so skilful are they at this class of work. Another class of very beautiful work I was not so pleased with. This is the feather-flower "industry" carried on by the French. Beautiful as is this work, it is carried on to the destruction of what is far more beautiful—those living gems, the humming-birds. The best of the flowers are composed entirely of humming-bird feathers; but these feathers

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are becoming so scarce that the dyed feathers of other birds are now being largely used. There is usually a fine display of these flowers in the shops in Rua d'Ouvidor, one of the principal streets, chiefly occupied by tradesmen of French nationality or descent.

At no great distance from Rio there are still extensive virgin forests, though much timber has been wantonly destroyed by fire as a speedy way of clearing the land. These forests present a grand appearance, with their tall, majestic trees, and mass of creeping, convoluted bines, varying in thickness from the size of whipcord to that of a man's thigh, to quote an often made simile; covered, frequently, with large trumpet-shaped flowers, or clusters of lovely orchids. Many of these forests are but seldom visited by the people of the land, though they are within easy reach of Rio, and I often found them as lonely within twenty miles of the city as those on the Rio Purus. Animal and bird life is abundant here, excepting humming-birds, which do not frequent forests, as their rascally destroyers know full well. Serpents, though present in considerable numbers, are not seen so frequently as might be expected. These cunning reptiles know the danger to be apprehended from man, and wherever he is numerous keep themselves close. At sound of his approaching footsteps they glide silently away and hide in their retreats. But this part of Brazil is more remarkable for the number and beauty of its butterflies than any other part of the country that I have visited, some of them being of considerable size and marvellous beauty of colour; but no clear idea of them could be conveyed except by coloured plates. Some species seem to hatch in armies, or large concourses, for one day I met with a swarm in the forest which must have numbered tens of thousands. These butterflies were rather small in size, and of a sulphur colour, and the next day the bulk of them had disappeared, for I could only find a few scattered ones. It was not the

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only occasion on which I saw a vast crowd of these insects of several different species.

My book, like my travels on this occasion, must come to an abrupt conclusion. The after effects of the yellow fever were such, that all my efforts to regain strength by means of the sea-voyage and prolonged rest at Rio, failed; and I tried the cooler climate of the United States, and ultimately had to return to England. So ill was I that there are long periods, at this time, in which I failed to make notes; and it is out of my power to give a very connected account of my proceedings just at this time.

I had intended to drop George at Para, the place where I picked up him and his mate Jose; but he insisted on going up to New York with me; and as I could no longer keep him in my service, he shipped on an American steamer, and that was the last I ever saw of him. Subsequently, on my return to America, I made many inquiries about him, but never learned anything of his movements or fate. The latter, I am afraid, I can guess only too well. Easily led, and of jovial, free-living disposition, he was a man requiring to be constantly under the influence of kindness and careful watching to save him from evil companions and ways. Destitute of education, and weak of mind, I can only fear the worst concerning his course after we parted; but, faults or no faults, I owe him a deep debt of gratitude. Had he abandoned me when I lay delirious at San Christoval, with none but strangers whose language, in lucid intervals, I could but very imperfectly understand, there is no telling what the result might have been. A foreign grave, probably. Of his unselfishness and courage I cannot speak too highly; and I was deeply grieved that I lost sight of him. Without the help and faithful services of these two men, the most important of the journeys described in the foregoing pages could not have been made. That I should have

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been able to persuade such men to endure what we all had to suffer is, perhaps, one of the most remarkable circumstances narrated in this book; and I cannot pen a fitter concluding sentence than this in which I pay them the just tribute due to their courage and faithfulness, a faithfulness unto death in the case of one of them.

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